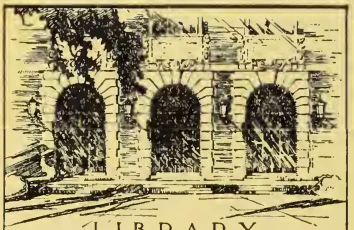

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BULLETIN

OF

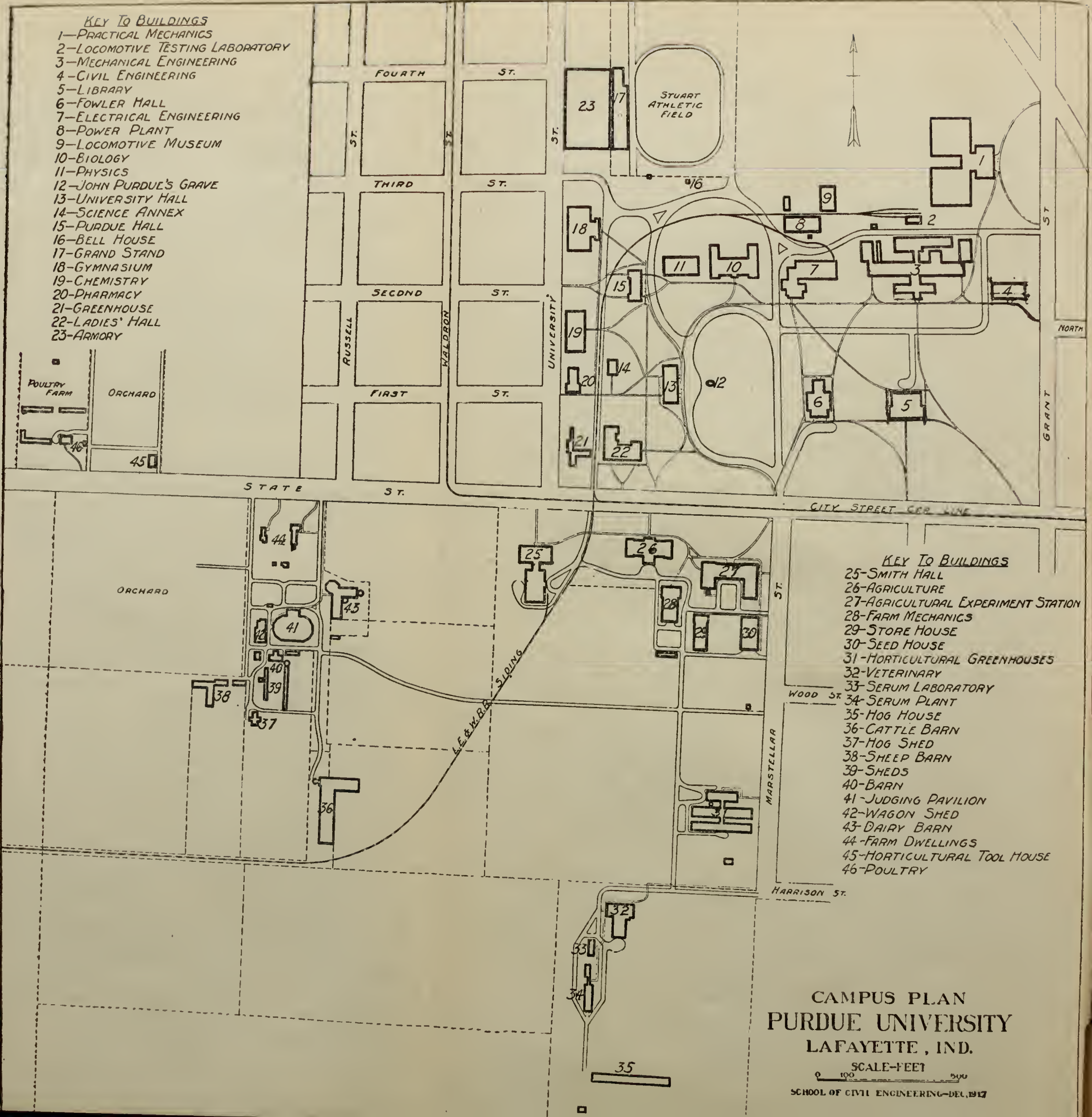
PURDUE UNIVERSITY

VOL. XIX APRIL, 1919 No. 3

ANNUAL CATALOGUE

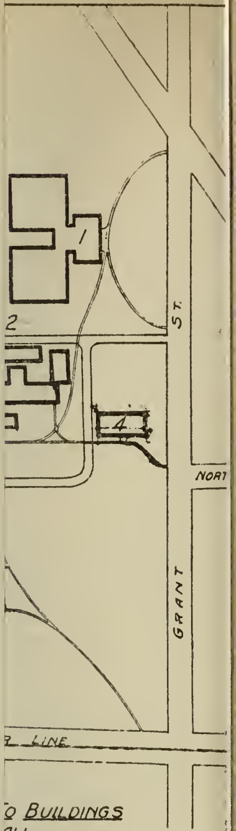
1918-19

PUBLISHED BY PURDUE UNIVERSITY, LAFAYETTE, INDIANA, IN NOVEMBER, DECEMBER, FEBRUARY, MARCH AND APRIL. Entered at the Post Office at LaFayette as second-class matter under the Act of July 16, 1894.



CAMPUS PLAN
PURDUE UNIVERSITY
LAFAYETTE, IND.

SCHOOL OF CIVIL ENGINEERING—DEC, 1917



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RING—DEC,1917

Application for Admission to Purdue University

USE THIS BLANK Send to Registrar, Purdue University

If you wish to enter Purdue University, it is important that you forward this application at once. See over.

Name ....
First name in full Middle name (not initial) Last name

What is your date of birth..

Present Post Office Address ....

Name of Parent or Guardian ....

Post Office Address of same..

....

When do you wish to enter Purdue University? ....

Check the work you wish to enter: (The questions in small type are important.)

Chemical Eng.................. Civil Eng.*.................. Electrical Eng.*..................

Mechanical Eng.*.................. Agriculture.................. Science†..................

Four year Pharmacy.............................. Two year Pharmacy..............................

*If you enter **Civil, Electrical** or **Mechanical** Engineering, you have choice between **French** and **German.** Which do you wish?..

†If you enter **Science,** you have choice in your Freshman year between **Home Economics** and **Drawing.** Which do you wish?..

If **Drawing,** do you prefer Freehand or Mechanical?..............................There is also a choice between **French** and **German.** Which do you wish?..............................

If you have our catalog, of what year is it?..

Are you a High School graduate? State school and date..............................

....

If not, what school have you attended and for how long?..............................

....

Have you reviewed your studies since leaving school?..............................

Have you already attended any college? State place and date..............................

....

State what practical or other experience you have had in line with your proposed plan of study..

....

Signature of Applicant..

Date..19......

SCHOOL RECORD

To be filled by applicant; not by school official.

The entrance credits required are as follows. Please check the number of semester credits you have in each subject. There should be a total of at least 30 semesters credit.

English	(3 years required)	You have............semester credit
Foreign Language	(2 years of one language required)	
Latin		" " .... " "
German		" " .... " "
French		" " .... " "
Mathematics		
Algebra	(1½ years required)	" " .... " "
Plane Geometry	(1 year required)	" " .... " "
Solid Geometry	(½ year required to enter Engineering)	" " .... " "
Science	(1 year required)	
Physics	(required to enter Agriculture, Pharmacy or Science)	" " .... " "
Botany		" " .... " "
Chemistry		" " .... " "
Zoology		" " .... " "
History	(1 year required)	" " .... " "

Other subjects as listed below:

.... " " .... " "

.... " " .... " "

.... " " .... " "

.... " " .... " "

.... " " .... " "

For official verification of this, the University should address

....Superintendent or Principal of

....High School

(City) (State)

On receipt of this application, the University will send for your school record and then report finally to you respecting your admission.

1918-1919

1918-1919

FORTY-FIFTH ANNUAL CATALOGUE

OF

PURDUE UNIVERSITY

LAFAYETTE, INDIANA

1918-19

WITH ANNOUNCEMENTS

FOR

1919-20

CALENDAR FOR 1919-20-21

SESSION DAYS ARE INDICATED BY BOLD FACE TYPE

1919

JULY

S	M	T	W	T	F	S
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SEPTEMBER

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OCTOBER

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NOVEMBER

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DECEMBER

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1920

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FEBRUARY

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APRIL

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JUNE

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1920

JULY

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AUGUST

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SEPTEMBER

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OCTOBER

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DECEMBER

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1921

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FEBRUARY

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MARCH

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APRIL

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UNIVERSITY CALENDAR

1919

May 1	5 P. M.	Graduate Theses due.
May 24	12 M.	Senior Vacation begins.
May 30		Memorial Day.
June 7	12 M.	Second Semester ends.
June 7	5 P. M.	Baccalaureate Theses due.
June 7 to 11		Commencement Week.
June 11		**Commencement.**
June 9 to July 19		Civil Engineering Camp.

SUMMER VACATION

September 5	8 A. M.	Fall Entrance Examinations begin.
September 6 to 10	8 A. M.	Registration of Resident Students.
September 10	**11 A. M.**	**First Semester begins.**
September 13	10 A. M.	Examinations for Advanced Credit.
October 31	5 P. M.	Graduate Student Registration closes.
November 27		Thanksgiving Day. Holiday.
December 20	12 M.	Christmas Recess begins.

1920

January 6	8 A. M.	Christmas Recess ends.
January 26	8 A. M.	Second Semester Registration begins.
January 31	12 M.	First Semester ends.
February 2	**8 A. M.**	**Second Semester begins.**
May 1	5 P. M.	Graduate Theses due.
May 22	12 M.	Senior Vacation begins.
May 30		Memorial Day.
June 5	12 M.	Second Semester ends.
June 5	5 P. M.	Baccalaureate Theses due.
June 5 to 9		Commencement Week.
June 9		**Commencement.**

SUMMER VACATION

September 3	8 A. M.	Fall Entrance Examinations begin.
September 8	**11 A. M.**	**First Semester begins.**

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BOARD OF TRUSTEES

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FRANKLIN F. CHANDLER	Indianapolis
†CHARLES DOWNING	Greenfield
CYRUS M. HOBBS	Bridgeport
JOHN A. HILLENBRAND	Batesville
‡JOHN ISENBARGER	North Manchester
§WARREN T. McCRAY	Kentland
JAMES W. NOEL	Indianapolis
JOSEPH D. OLIVER	South Bend
ANDREW E. REYNOLDS	Crawfordsville
WILLIAM V. STUART	Lafayette

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JOSEPH D. OLIVER	President
EDWARD A. ELLSWORTH	Secretary
JAMES M. FOWLER	Treasurer

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COMMITTEE ON AGRICULTURE

ANDREW E. REYNOLDS
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COMMITTEE ON HORTICULTURE

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COMMITTEE ON TECHNOLOGY AND ENGINEERING

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CYRUS M. HOBBS
WALTER BREAKS

COMMITTEE ON BUILDINGS

WILLIAM V. STUART
JOHN A. HILLENBRAND
WALTER BREAKS

---

* Appointed January 1, 1919.
† Deceased July 27, 1918.
‡ Appointed September 19, 1918.
§ Term expired January 1, 1919.

OFFICERS OF ADMINISTRATION

WINTHROP ELLSWORTH STONE, Ph. D., LL. D.,
President of the University

STANLEY COULTER, Ph. D., LL. D.,
Secretary of the Faculty and Dean of the School of Science

CHARLES HENRY BENJAMIN, M. E., D. Eng.,
Dean of the Schools of Engineering
Director of the Engineering Experiment Station

JOHN HARRISON SKINNER, B. S.,
Dean of the School of Agriculture

GEORGE IRVING CHRISTIE, B. S.,
Superintendent of the Department of Agricultural Extension

CHARLES GOODRICH WOODBURY, M. S.,
Director of the Agricultural Experiment Station

WILLIAM MURRAY HEPBURN, A. M.,
Librarian of the University

RALPH BUSHNELL STONE, A. M.,
Registrar of the University

EDWARD AUGUSTUS ELLSWORTH,
Bursar of the University

SHERMAN ROBERTS CLARK,
Purchasing Agent

CORPS OF INSTRUCTORS 1918-1919

FACULTY

RAYMOND VINCENT ACHATZ, E. E.,
Assistant Professor of Telephone Engineering

WILLIAM AITKENHEAD, M. E., M. A.,
Associate Professor of Farm Mechanics

CHARLES CLINTON ALBRIGHT, C. E.,
Associate Professor of Civil Engineering

HARRY EARL ALLEN, B. S. A.,
Associate Professor of Animal Husbandry

FREDERICK OSBAND ANDEREGG, Ph. D.,
Assistant Professor of Chemistry

OSCAR GUSTAV ANDERSON, B. S.,
Associate Professor of Horticulture

JOSEPH CHARLES ARTHUR, M. S., D. Sc., LL. D.,
Professor Emeritus of Botany

EDWARD AYRES, M. A.,
Head of the Department of English; Professor of English

HERMAN BABSON, A. M., Ph. D.,
Head of the Department of Modern Languages; Professor of Modern Languages.

WILLIAM HUNT BATES, A. M., Ph. D.,
Associate Professor of Mathematics

CHARLES AUGUST BEHRENS, M. S., Ph. D.,
Professor of Bacteriology

CHARLES HENRY BENJAMIN, M. E., D. Eng.,
Dean of the Schools of Engineering; Director of the Engineering Laboratories; Director of the Engineering Experiment Station.

OTTO CARTER BERRY, A. B., B. S. M. E.,
Associate Professor of Gas Engineering

*PAUL BURNETT BERRY,
Second Lieutenant, Infantry, U. S. A.; Assistant Professor of Military Science and Tactics.

BEVERLEY WAUGH BOND, JR., Ph. D.,
Associate Professor of History and Economics

GEORGE CLINTON BRANDENBURG, Ph. D.,
Associate Professor of Education and Psychology

†FRANK W. BRYANT,
Major, Field Artillery, U. S. A.; Assistant Professor of Military Science and Tactics

‡EARL GEORGE BYERS, B. S. A.,
Major, Field Artillery, U. S. A.; Assistant Professor of Military Science and Tactics

RALPH HOWARD CARR, M. A., Ph. D.,
Associate Professor of Agricultural Chemistry

JAMES LLEWELLYN CATTELL, Ph. D.,
Associate Professor of French

ARTHUR WILLIAMS COLE, M. E.,
Professor of Steam Engineering

STANLEY COULTER, Ph. D., LL. D.,
Dean of the School of Science; Professor of Biology; Director of the Biology Laboratories

---

* To February 15, 1919.
† Detailed, April 16, 1919.
‡ Detailed, February 21, 1919.

Robert Alexander Craig, D. V. M.,
Professor of Veterinary Science

Samuel Sayford Cromer, A. B., B. S. A.,
Associate Professor of Agricultural Education

Clarence Carl Cunningham, B. S. C. E.,
Assistant Professor of Farm Mechanics

Oliver Frost Cutts, LL. B.,
Head of the Department of Physical Education; Professor of Physical Education

Albert Hartman Daehler, A. B.,
Assistant Professor of English

Charles Shambaugh Doan, A. M.,
Instructor in Mathematics

Richard Gustavus Dukes, M. E.,
Head of the Department of Applied Mechanics; Professor of Applied Mechanics

Howard Edwin Enders, M. S., Ph. D.,
Professor of Zoology

James Arthur Estey, Ph. D.,
Associate Professor of History and Economics

Percy Norton Evans, Ph. D.,
Head of the Department of Chemistry; Professor of Chemistry; Director of the Chemistry Laboratory

Dressel Dewitt Ewing, E. E., M. E.,
Professor of Electrical Railway Engineering

Ervin Sidney Ferry, B. S.,
Head of the Department of Physics; Professor of Physics

Martin Luther Fisher, M. S.,
Professor of Agronomy, in charge of Department

Harry Franklin Fore, A. B., B. S.,
Assistant Professor of English

Laura Anne Fry,
Professor of Industrial Art

Carl Flindt Gobble, B. S.,
Assistant Professor of Animal Husbandry

Helen Golden, M. S.,
Assistant Professor of Mechanical Drawing

Laurenz Greene, B. S., M. S. A.,
Professor of Horticulture

Eric Viele Greenfield, A. M.,
Assistant Professor of Modern Languages

Howard William Gregory, M. S.,
Assistant Professor of Dairying

Otto Albert Greiner, Ph. B.,
Assistant Professor of Modern Languages

Frederick William Greve, Jr., M. E.,
Assistant Professor of Hydraulics

John Tevis Gunn, A. M.,
Assistant Professor of Modern Languages

*Lawrence Hadley, Ph. D.,
Associate Professor of Mathematics

Oakel Fowler Hall, A. B., S. T. B.,
Associate Professor of Educational Sociology

---

*On leave from Earlham College.

CHARLES FRANCIS HARDING, S. B., E. E.,
Head of the Department of Electrical Engineering; Professor of Electrical Engineering; Director of the Electrical Laboratory.

WILLIAM KENDRICK HATT, C. E., M. A., Ph. D.,
Head of the School of Civil Engineering; Professor of Civil Engineering; Director of the Materials Testing Laboratory

JOHN HEISS, A. M.,
Associate Professor of Modern Languages

WILLIAM MURRAY HEPBURN, M. A., B. L. S.,
Librarian

JAMES DAVID HOFFMAN, M. E.,
Head of the Department of Practical Mechanics; Professor of Practical Mechanics; Director of the Practical Mechanics Laboratory

GLENN JAMES, Ph. D.,
Assistant Professor of Mathematics

CHARLES BERNARD JORDAN, Ph. C., M. S.,
Head of the School of Pharmacy; Professor of Pharmaceutical Chemistry

ALFRED MONROE KENYON, A. M.,
Head of the Department of Mathematics; Professor of Mathematics

HENRY JAMES KESNER, B. A., C. E.,
Associate Professor of Structural Engineering

GEORGE CARYL KING, M. E.,
Assistant Professor of Engineering Design

*ROBERT GEORGE KIRKWOOD, B. S., C. E.,
Lt. Colonel, Field Artillery, U. S. A.; Professor of Military Science and Tactics and Commandant of Cadets

WILLIAM CARROLL LATTA, M. S.,
Professor of Agriculture

CHARLES HERBERT LAWRANCE, M. E.,
Assistant Professor of Applied Mechanics

CHARLES OREN LEE, B. S. in Pharm., M. S.,
Professor of Pharmacy

MARK HARVEY LIDDELL, M. A.,
Assistant Professor of English

GEORGE EDWARD LOMMEL, C. E.,
Assistant Professor of Civil Engineering

WALTER ERNEST LOMMEL, B. S. A.,
Assistant Professor of Horticulture

LLEWELLYN LUDY, M. E.,
Professor of Experimental Engineering

†HAMILTON EWING MAGUIRE,
Major, Field Artillery, U. S. A.; Associate Professor of Military Science and Tactics.

‡EDWARD JAMES MCKINLEY,
Captain, Infantry, U. S. A.; Professor of Military Science and Tactics; Commandant of Cadets

EDWARD G. MAHIN, M. S., Ph. D.,
Professor of Analytical Chemistry

§HARRIS CLARK MAHIN, B. S.,
Captain, Field Artillery, U. S. A.; Assistant Professor of Military Science and Tactics.

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* Detailed, February 24, 1919.
† Detailed, March 7, 1919.
‡ From December 27, 1918, to February 21, 1919.
§ Detailed, April 4, 1919.

William Marshall, M. S., Ph. D.,
Professor of Mathematics

Mary Lockwood Matthews, B. S.,
Head of the Department of Home Economics; Professor of Home Economics

Arthur Renwick Middleton, Ph. D.,
Professor of Inorganic Chemistry

*Orla Glenn Miller, B. S.,
Captain, Field Artillery, U. S. A.; Assistant Professor of Military Science and Tactics.

†John Watson Moore, A. B.,
Captain, Field Artillery, U. S. A.; Assistant Professor of Military Science and Tactics

Thomas Francis Moran, Ph. D.,
Head of the Department of History and Economics; Professor of History and Economics

George Wesley Munro, E. E.,
Associate Professor of Mechanical Engineering

Ralph Emory Nelson, M. S.,
Assistant Professor of Chemistry

Ralph Waldo Noland, M. E.,
Assistant Professor of Heating and Ventilation

Harry Creighton Peffer, M. S.,
Head of the School of Chemical Engineering; Professor of Chemical Engineering

Allen Griffith Philips, B. S.,
Professor of Poultry Husbandry

Burr Norman Prentice, B. A., M. S. in Forestry,
Assistant Professor of Forestry

Walter Allen Price, B. S. A.,
Assistant Professor of Entomology

Edward George Proulx, M. S.,
Professor of Agricultural Chemistry

Ollie Ezekiel Reed, M. S.,
Head of the Dairy Department; Professor of Dairying

Fred Earl Robbins, M. S. A.,
Associate Professor of Crop Production

George Horace Roberts,
Assistant Professor of Veterinary Science

George Lucas Roberts, A. M.,
Head of the Department of Education; Professor of Education; Director of Vocational Education

Harry Rubenkoenig, B. S. M. E.,
Assistant Professor of Railway Management

Ogle Hesse Sears, M. S.,
Assistant Professor of Agricultural Chemistry

George William Sherman, Jr., M. S.,
Assistant Professor of Chemistry

Carolyn Ernestine Shoemaker, M. S.,
Professor of English Literature; Dean of Women

John Harrison Skinner, B. S.,
Dean of the School of Agriculture; Professor of Animal Husbandry

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* Detailed April 7, 1919.

† Detailed, March 4, 1919.

JOHN APP SLIPHER, B. S.,
Assistant Professor of Soils

CHARLES MARQUIS SMITH, B. S.,
Associate Professor of Physics

WILLIAM WESLEY SMITH, M. S. A.,
Associate Professor of Animal Husbandry

ALFRED STILL,
Professor of Electrical Design

RALPH BUSHNELL STONE, A. M.,
Assistant Professor of Mathematics; Registrar

OLIVER PERKINS TERRY, M. S., M. D.,
Professor of Anatomy and Physiology; University Physician

LOUIS AGASSIZ TEST, B. M. E., A. C.,
Professor of General Chemistry

PHILIP ARMAND TETRAULT, A. B., M. S.,
Assistant Professor of Biology

CLARENCE HOWE THURBER, B. A.
Assistant Professor of Public Speaking

MARIE AGNES TILSON, M. S.,
Assistant Professor of Home Economics Education

EBEN HENRY TOOLE, A. M.,
Assistant Professor of Plant Physiology and Pathology

ALANSON NILES TOPPING, B. S.,
Professor of Electrical Engineering

JAMES TROOP, M. S.,
Professor of Entomology

RALPH BROWN TRUEBLOOD, B. S. M. E.,
Professor of Practical Mechanics

WILLIAM PAYSON TURNER,
Professor of Practical Mechanics

ROBERT CLARENCE EDWIN WALLACE, B. S. A.,
Associate Professor of Soils

*LUCIEN PAUL WHITAKER,
Lieutenant, Infantry, U. S. A.; Assistant Professor of Military Science and Tactics

ALFRED THEODOR WIANCKO, B. S. A.,
Professor of Agronomy

RALPH BENJAMIN WILEY, B. S. C. E.,
Associate Professor of Sanitary Engineering

†RAY CYRUS YEOMAN, C. E.,
Associate Professor of Highway Engineering

GILBERT AMOS YOUNG, M. E., M. M. E.,
Head of the School of Mechanical Engineering; Professor of Mechanical Engineering.

WILLIAM ARTHUR ZEHRING, A. M.,
Assistant Professor of Mathematics

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* From December 27, 1918, to April 30, 1919.
† Resigned March 1, 1919.

INSTRUCTORS

Frank Churchill Beall, B. S. A.,	*Instructor in Animal Husbandry*
Grover Cleveland Blalock, E. E.,	*Instructor in Electrical Engineering*
Amy Irene Bloye, Ph. B.,	*Instructor in Home Economics*
Clifford Downs Bushnell, B. S. M. E.,	*Instructor in Practical Mechanics*
*Richard Albert Cordell, A. B.,	*Instructor in English*
Ray Burnell Crepps, B. S. C. E.,	*Instructor in Testing Laboratory*
Frank Cullinan, B. S.,	*Instructor in Pomology*
David Lindner Curtner, E. E.,	*Instructor in Electrical Engineering*
Paul Spotts Emrick, E. E.,	*Instructor in Electrical Engineering*
Luzerne Hallock Fairchild, B. S. A.,	*Instructor in Dairying*
George Kedzie Foresman, B. S.,	*Instructor in Chemistry*
Mary Edith Gamble, B. S., M. A.,	*Instructor in Home Economics*
Gordon Harwood Graves, A. M., Ph. D.,	*Instructor in Mathematics*
Louise Hale, B. A.,	*Instructor in French*
Clifton Terrell Hazard, A. M.,	*Instructor in Mathematics*
Louis Heimlich, M. S.,	*Instructor in Botany*
Amy Howe, Ph. B.,	*Instructor in Home Economics*
Dwight Clinton Kennard, B. S. A.,	*Instructor in Poultry Husbandry*
Mary Rose King, A. B., B. S.,	*Instructor in Home Economics*
Fred William Krotzer, B. S. E. E.,	*Instructor in Mathematics*
Daniel Acker Lehman, A. M.,	*Instructor in Mathematics*
Frank Clark Lewis, M. S., Agr. E.,	*Instructor in Farm Mechanics*
Marguerite Genevieve Mallon, M. S.,	*Instructor in Home Economics*
Charles Manchester, A. B., B. D., D. D.,	*Instructor in Mathematics*
†Jacob Papish, B. S., A. M.,	*Instructor in Chemistry*
Laura Partch, B. S.,	*Instructor in Home Economics*
Harry Houston Peckham, A. M.,	*Instructor in English*
*Estel Burdell Penrod, B. S., M. E.,	*Instructor in Physics*
Carl Watson Piper, B. S.,	*Instructor in Electrical Engineering*
Charles Kendall Robbins, A. M.,	*Instructor in Mathematics*
William Augustus Rudisill, M. S.,	*Instructor in Chemistry*
Rudolf Leopold Sauerhering, Ph. B.,	*Instructor in Modern Languages*
Lewis Herbert Schwartz, B. S. A.,	*Instructor in Poultry Husbandry*
Paul Sidwell, A. B.,	*Instructor in English*
Glenn Marsh Smith, B. S. in Hort.,	*Instructor in Horticulture*
Paul Tincher Smith, A. M.,	*Instructor in History and Economics*
George Washington Spindler, Ph. D.,	*Instructor in Modern Languages*
Rex Anthony Whiting, D. V. M.,	*Instructor in Veterinary Science*
Howard Henry Wikel, A. M.,	*Instructor in Modern Languages*

ASSISTANTS

Edward Frank Bittner, A. B.,	*Assistant in Chemistry*
Harold Huston Brelsford,	*Assistant in Practical Mechanics*
Lawrence Britton, B. S. M. E.,	*Assistant in Practical Mechanics*
Roscoe Henry Bush, B. S. M. E.,	*Assistant in Mechanical Laboratory*
Hugh Hayt Chadbourne,	*Assistant in Practical Mechanics*
Sarah Katheryn Elkin, Ph. B.,	*Assistant in Biology*
Beatrice Fisher, B. S.,	*Assistant in Home Economics*
Lillie Fry Fisher,	*Assistant in Art*
Aubrey Chester Grubb, B. A. in Educ.,	*Assistant in Chemistry*

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* From January 1, 1919.
† Resigned February 28, 1919.

Elizabeth Ora Hassenzahl, B. S.,	*Assistant in Biology*
Nora Iddings, B. S.,	*Assistant in Chemistry*
Frederick Joseph Kenny, B. S.,	*Assistant in Chemistry*
Edwin Jacob Kohl, B. S.,	*Assistant in Biology*
Elizabeth A. Mitchell, A. M.,	*Assistant in Physics*
Marie Lela Munger, B. S.,	*Assistant in Chemistry*
Emerson Pugh, B. S. E. E.,	*Assistant in Electrical Engineering*
Gladys Margarie Robinson, B. S.,	*Assistant in Chemistry*
Gilbert Louis Stitz, B. S.,	*Assistant in Practical Mechanics*

INSTRUCTORS IN SHOPS

Royal Bertram Gregg	*Wood Shop*
Charles Andrew Haag	*Machine Shop*
John Francis Keller	*Forge Shop*

ASSISTANTS IN SHOPS

John Jacob Dietrich	*Machine Shop*
Edward Eugene Falley	*Wood Shop*
Roscoe Leonard Miller	*General*
Elmer Louis Pertz	*Forge Shop*
Morton Tumey	*Wood Shop*
Anthony Joseph Vellinger	*Machine Shop*
Robert Ernest Wendt	*Foundry*
James Lewis Wunderlee	*Wood Shop*

SPECIAL INSTRUCTORS IN THE WINTER SCHOOL OF AGRICULTURE AND HOME ECONOMICS

Harry Ream Lochry, B. S. A.,	*Instructor in Dairying*
Ray B. Goss,	*Tractor School*

LIBRARY STAFF

William Murray Hepburn, M. A., B. L. S.,	*Librarian*
Alice May Dougan, Ph. B., B. L. S.,	*Cataloguer*
Blanche Annis Miller,	*Assistant*
Agnes Eugenia Vater, M. S.,	*Assistant*
*Bertha Jane Morgan,	*Assistant*
Alice Frances Hupe, B. S.,	*Assistant*
Flora Frances Roberts, M. S.,	*Assistant*

DEPARTMENT OF PHYSICAL EDUCATION

Oliver Frost Cutts, A. B., LL. B.,	*Head of Department*
†Ward Lewis Lambert, A. B.,	*Basketball Coach*
Edward Joseph O'Connor,	*Trainer and Track and Field Coach*
‡Arthur G. Scanlon,	*Football Coach*

Helen Hand, Ph. B.,	*The President's Secretary*
Mrs. Eva Linn Mackay, M. S.,	*Organist*

Arthur Dufty, B. S. M. E.,	*Superintendent of Buildings*
Pierre Van Landeghem,	*Superintendent of Grounds*

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* Resigned, March 31, 1919.
† From January 1, 1919.
‡ To September 30, 1918.

COMMITTEES OF THE FACULTY

Executive Committee—President Stone, *Chairman;* Deans Coulter, Skinner, Benjamin, Shoemaker; Professors Hatt, Harding, Peffer, Young, Jordan, Moran, Kenyon, Evans, Ayres, Babson, Stone, *Secretary.*

Advanced Credits—Professor Kenyon, Chairman; Professors Trueblood, Test, Heiss.

Alumni Affairs—Professor Young, *Chairman;* Professors Skinner, Munro, Christie.

Athletic Affairs—Professor Moran, Chairman; Professors Young, Coulter, Cutts, Skinner.

Catalogue—Professor Stone, *Chairman;* Professor Liddell; Mr. Peckham.

Convocations, Public Lectures, Etc.—Professor Moran, *Chairman;* Professors Middleton, Coulter, Munro.

Delinquent Students—Professor Stone, *Chairman;* Professors W. W. Smith, Bates, Greenfield.

Discipline—Dean Coulter, *Chairman;* Professors Topping, Turner, Peffer, Aitkenhead, Thurber.

Entrance Requirements—Professor Roberts, *Chairman;* Professors Ayres, Babson, C. M. Smith.

Graduate Students—Professor Kenyon, *Chairman;* Deans Coulter, Skinner, Benjamin.

Library—Professor Hepburn, *Chairman;* Professors Liddell, Hatt, Evans.

Military Affairs—Lt. Colonel Kirkwood; Professors Babson, Peffer, Philips.

Recommendations of Teachers—Professor Roberts, *Chairman;* Professors Matthews, Carr.

Social Functions of Students—Dean Coulter, *Chairman;* Professors Evans, Shoemaker, Berry.

Special Students—Dean Coulter, *Chairman;* Professors Fisher, Cromer.

Student Health and Domiciles—Professor Terry, *Chairman;* Professors Mahin, Jordan, Cole, Behrens.

Student Loans—President Stone, *Chairman;* Professors Young, Fisher, Bates.

Student Organizations—Dean Benjamin, *Chairman;* Professors Harding, Hatt, Thurber.

Student Publications—Professor Moran, *Chairman;* Professors Ludy, Daehler, Allen.

AGRICULTURAL EXPERIMENT STATION

HEADS OF DEPARTMENTS

Charles Goodrich Woodbury, M. S.,	*Director*
George Irving Christie, B. S. A.,	*Agricultural Extension*
Robert Alexander Craig, D. V. M.,	*Veterinary Science*
Laurenz Greene, M. S. A.,	*Horticulture*
Herbert Spencer Jackson, A. B.,	*Botany*
Allen Griffith Philips, B. S.,	*Poultry Husbandry*
Edward George Proulx, M. S.,	*State Chemist*
Ollie Ezekiel Reed, M. S.,	*Dairy Husbandry*
John Harrison Skinner, B. S.,	*Animal Husbandry*
James Troop, M. S.,	*Entomology*
Alfred Theodor Wiancko, B. S. A.,	*Soils and Crops*

ASSOCIATES AND ASSISTANTS

Luna Evelyn Allison, B. S.,	*Assistant in Botany*
Reuben Oscar Bitler, B. S.,	*Deputy State Chemist*
†George Abraham Branaman, B. S.,	*Assistant in Animal Husbandry*
Margaret Briggs, B. S.,	*Deputy State Chemist*
Turner Harold Broughton, B. S.,	*Assistant Inspector in Creamery License Department*
Ralph Howard Carr, M. A., Ph. D.,	*Associate in Nutrition Chemistry*
Glen George Carter, B. S.,	*Inspector in State Chemist Department*
*Benjamin Franklin Catherwood,	*Inspector in State Chemist Department*
Frank J. Cason, B. S.,	*Assistant in Serum Production*
David Bert Clark, D. C. M.,	*Associate Veterinarian*
Thomas Archibald Coleman,	*State Leader in Field Studies and Demonstration Work*
Samuel Dicken Conner, M. S.,	*Associate Chemist in Soils and Crops*
Clinton Otis Cromer, B. S. A.,	*Associate in Crops*
Frank Cullinan, B. S.,	*Assistant in Horticulture*
Paul Byron Curtis, B. S.,	*Deputy State Chemist*
Morris Kirkwood Derrick, B. S. A.,	*Inspector in State Chemist Department*
Leo Philip Doyle, B. S. A.,	*Assistant in Animal Pathology*
William Frederick Epple, Ph. C.,	*Assistant in Dairy Chemistry*
Luzerne Hallock Fairchild, B. S. A.,	*Assistant in Dairy Husbandry*
Ernest Newton Fergus, M. S.,	*Assistant in Soils and Crops*
Martin Luther Fisher, M. S.,	*Assistant Chief in Soils and Crops*
Hubert Westcott Fleisher, B. S. A.,	*Assistant Creamery Inspector*
Omar William Ford, A. B.,	*Deputy State Chemist*
George Melrose Frier, B. S. A.,	*Associate in Short Courses and Exhibits*

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* To January 22, 1919.
† To March 15, 1919.

*Forest Bartley Fuller,	*Assistant in Botany*
Max W. Gardner,	*Associate in Botany*
Leslie Ray George, B. S.,	*Assistant in Animal Pathology*
Howard William Gregory, M. S.,	*Associate in Dairy Manufactures*
Mabel Louise Harlan,	*Assistant in Agricultural Extension*
Herbert Lybrook Hart, B. S.	*Inspector in State Chemist Department*
George Nisley Hoffer, A. B., M. S.,	*Associate in Botany*
Walter August Huelson, B. S.,	*Assistant in Horticulture*
Sadocie Connellee Jones, M. S.,	*Associate in Soils*
Dwight Clinton Kennard, B. S. A.,	*Assistant in Poultry Husbandry*
Lawrence Cleophus Kigan, D. V. M.,	*Associate Veterinarian*
†Franklin George King, B. S. A.,	*Associate in Animal Husbandry*
Herbert E. McCartney, B. S. A.,	*Assistant in Animal Husbandry; Secretary of the Stallion Enrollment Board*
Edwin Butterworth Mains, Ph. D.,	*Assistant in Botany*
Willard Hungate Martin, B. S. A.,	*Assistant Inspector Creamery License*
Herman Nimitz, B. S.,	*Deputy State Chemist*
Joseph Oskamp, B. S. A.,	*Associate in Pomology*
‡James Lloyd Pool, B. S. A.,	*Deputy State Chemist*
Harry James Reed,	*Assistant to the Director*
George Horace Roberts,	*Associate Veterinarian*
Otis S. Roberts, B. S.,	*Chief Inspector in State Chemist Department*
Jacob Howard Roop, B. S.,	*Deputy State Chemist*
George Spitzer, Ph. G., B. S.,	*Associate in Dairy Chemistry*
Robb Spalding Spray, M. S.,	*Assistant in Animal Pathology*
Samuel Farrar Thornton, B. S.,	*Deputy State Chemist*
William Benjamin Tiedt,	*Inspector in State Chemist Department*
Claude M. Vestal, B. S. A.,	*Associate in Animal Husbandry*
§Gilbert Polk Walker, B. S. A.,	*Assistant in Soils and Crops*
Fred Leslie Walkey, D. V. M.,	*Assistant Veterinarian*
¶Claude Watson, B. S. A.,	*Assistant in Horticulture*
Rex Anthony Whiting, D. V. M.,	*Associate in Animal Pathology*

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* From April 9, 1919.

† From March 1, 1919.

‡ From January 13, 1918.

§ From February 1, 1919.

¶ From April 1, 1919.

AGRICULTURAL EXTENSION

George Irving Christie, B. S. A., *Superintendent*

Thomas Archibald Coleman, *Acting Supt. and County Agent Leader*

Edwin George Baldwin, Ph. D.,	*Field Agent in Apiculture*
Walter Blaine Brumfiel,	*Farm Help Specialist*
Cecil Leland Burkholder, B. S. in Hort.,	*Associate in Horticulture*
Richard Dean Canan, M. S. A.,	*Assistant in Dairy Husbandry*
Carey Walton Carrick, M. A., M. S. A.,	*Assistant in Poultry Husbandry*
Joseph Ramsey Cavanagh, B. S. A.,	*Field Agent in Marketing*
*Hamilton Banks Collings,	*Assistant County Agent Leader*
*Elizabeth Louise Cowan,	*Assistant Home Demonstration Agent*
*Gertrude Duryea,	*Assistant in County Agent Work*
Walter Quintin Fitch, B. S. A.,	*Assistant in Agricultural Extension*
George Melrose Frier, B. S. A.,	*Associate in Short Courses and Exhibits*
Lella Reed Gaddis,	*State Leader, Home Demonstration Agents*
Alma Lucille Garvin, B. S. D. S.,	*Assistant in Home Economics*
Fay Claude Gaylord, B. S. A.,	*Assistant in Horticulture*
Clayton Ray George, B. S. A.,	*Associate in Dairy Husbandry*
Elizabeth Gerhard, B. S.,	*Assistant in Home Economics*
†Charles Truman Gregory, B. S. A., Ph. D.,	*Assistant in Pathology*
*Geraldine Hadley,	*Assistant Emergency Home Demonstration Agent*
Mabel Louise Harlan,	*Assistant in Agricultural Extension*
Claude Harper,	*Assistant in Sheep Husbandry*
Clarence Henry, B. S.,	*Assistant County Agent Leader*
Thomas Robert Johnston,	*Assistant County Agent Leader*
Leroy Lucien Jones, B. S.,	*Associate in Poultry Husbandry*
Roy Wilber Kelley,	*Assistant in Entomology*
Fred Leigh Kem, B. S. A.,	*Assistant in Boys' and Girls' Clubs*
Lawrence Kigin, D. V. M.,	*Assistant in Veterinary Science*
Grace Leone King, B. S.,	*Assistant in Boys' and Girls' Clubs*
Walter Krueck, B. S. A.,	*Assistant in Boys' and Girls Clubs*
William Carroll Latta, M. S.,	*Farmers' Institute Specialist*
†Anna Maude Lute, A. B., B. S. L.,	*Scientific Assistant, Seed Laboratory*
Charles Russell Mason, B. S. in Hort.,	*Assistant in Horticulture*
‡Calvin Fletcher McIntosh, A. B.,	*Assistant County Agent Leader*
Wallace Oliver Mills, B. S. A.,	*Assistant in Dairy Husbandry*
Dillon Seymour Myer, B. S. A.,	*Assistant County Agent Leader*
Charles Alfred Norman, B. S. in Ag. Eng., M. S. A.,	*Assistant in Rural Engineering*
Ward Adelbert Ostrander, M. S.,	*Associate in Soils and Crops*

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† Detailed by the U. S. Department of Agriculture.

* In co-operation with the U. S. Department of Agriculture.

‡ To March 3, 1919.

Millard Herbert Overton, B. S. A.,	*Assistant in Farm Management Demonstrations*
*Edith Mary Patt,	*Assistant Home Demonstration Agent*
Maybelle Eleanor Peck, B. A.,	*Assistant in Boys' and Girls' Clubs*
Victor Ray Phares, B. S. A.,	*Assistant in Short Courses and Exhibits*
Francis John Pipal, A. M.,	*Associate in Botany*
Perry Steen Richey, B. S. A.,	*Assistant in Animal Husbandry*
*Inez Richardson,	*Assistant Emergency Home Demonstration Agent*
Lynn Shelby Robertson, B. S. A.,	*Assistant in Farm Management Demonstrations*
Gordon William Rosencrans, A. B., M. S.,	*Assistant County Agent Leader*
John William Schwab, B. S.,	*Associate in Animal Husbandry*
Frederick McIntyre Shanklin, B. S., A. M.,	*Assistant State Leader, Boys' and Girls' Clubs*
Zora Mayo Smith, A. M.,	*State Leader, Boys' and Girls' Clubs*
†William Edgar Stone, B. S.,	*Assistant in Farm Management Demonstration*
Richard Stokes Thomas, B. S. A.,	*Assistant in Soils and Crops*
James Rollo Wiley, B. S. A.,	*Assistant in Swine Production*

ENGINEERING EXPERIMENT STATION

Board of Management

Charles Henry Benjamin, M. E., D. Eng.,	*Director*
Charles Francis Harding, S. B., E. E.,	*Electrical Engineering*
William Kendrick Hatt, C. E., M. A., Ph. D.,	*Civil Engineering*
Henry Creighton Peffer, M. S.,	*Chemical Engineering*
Gilbert Amos Young, M. E., M. M. E.,	*Mechanical Engineering*

John Hezekiah Holloway,	*Research Assistant*
Claude Samuel Kegerreis, B. S. M. E.,	*Research Assistant*
Karl Boyer McEachron, M. E.,	*Research Assistant*

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* In co-operation with U. S. Department of Agriculture.
† To February 28, 1919.

THE ORIGIN AND PURPOSE OF PURDUE UNIVERSITY

Purdue University was organized under an act of Congress, passed July 2, 1862. This act appropriated public lands to the several States for the purpose of aiding in the maintenance of colleges "where the leading objects shall be, without excluding other scientific or classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts." The act provides that States availing themselves of the benefits offered shall establish and maintain not less than one college of the nature above indicated. It also specifies certain conditions in accordance with which this shall be done. Among these conditions are the following:

> FIRST.—"No portion of said fund, nor the interest thereon, shall be applied directly or indirectly, under any pretense whatever, to the purchase, erection, preservation or repair of any building or buildings.
>
> SECOND.—"Any State which may take and claim the benefit of the provisions of this act shall provide within five years, at least, not less than one college, as described in the fourth section of this act, or the grant to such State shall cease; and said State shall be bound to pay the United States the amount received of any lands previously sold, and that the title to purchase under the State shall be valid."

The State of Indiana, by an act approved March 6, 1865, obligated itself as follows:

> "The State of Indiana accepts and claims the benefits of the provisions of the acts of Congress, approved July 2, 1862, and April 4, 1864, and assents to all the conditions and provisions in said acts contained."

The State accepted from John Purdue and other citizens of Tippecanoe County donations to the amount of $230,000, and pledged its faith to the adequate and perpetual maintenance of the institution. Purdue University is also a beneficiary of four acts of Congress, known respectively as the Hatch, the Morrill, the Adams and the Nelson acts. Private donations have been received from Amos Heavilon, from Eliza Fowler, from James Fowler, from William C. Smith and from Moses Fell Dunn.

By an act of the Legislature approved May 6, 1869, the institution thus provided for was located in Tippecanoe County, and the faith of the State was pledged that the location so made shall be permanent.

The name of Purdue University was also established by legislative act of 1869, as follows: "In consideration of the said donation by John Purdue, amounting to one hundred and fifty thousand dollars, and of the further donation of one hundred acres of land appurtenant to the institution, and on condition that the same be made effectual, the said institution, from and after the date of its location as aforesaid, shall have the name and style of 'Purdue University'; and the faith of the State is hereby pledged that such name and style shall be the permanent designation of said institution, without addition thereto or modification thereof."

It thus appears that the University, while bearing the name of John Purdue, is an institution exclusively under State control, and that government aid was originally extended, not only to establish, but to aid in maintaining a State institution of a specific kind.

Purdue University is supported by legislative appropriations, by the proceeds of an endowment granted by the General Government and held in trust by the State of Indiana (three hundred and forty thousand dollars), by appropriations from the General Government amounting to eighty thousand dollars, and has non-productive property in building, lands, and equipment to the value of one million, seven hundred and fifty thousand dollars. It has six hundred and ninety-two acres of land in its campus and farm, twenty-nine buildings, well equipped laboratories, shops, museums, library and reading rooms.

The University offers instruction

1. In Agriculture—
   Science and practice of agriculture; horticulture, entomology; agricultural chemistry; veterinary science; dairy husbandry; animal husbandry.
2. In Applied Science—
   Biology; chemistry; physics; art; sanitary science; forestry; home economics.
3. In Mechanical Engineering—
   Shop practice; machine design; transmission of power; steam engineering; railway mechanical engineering; gas engineering; heating and ventilation.
4. In Civil Engineering—
   Shop practice; railway engineering; structural engineering; hydraulic engineering; sanitary engineering.
5. In Electrical Engineering—
   Shop practice; machine design; power generation and transmission; electric railway engineering; telephone engineering; illuminating engineering.
6. In Chemical Engineering—
   Shop practice; chemistry; physics; applied electricity; mathematics; mechanics; steam engineering; materials testing.
7. In Pharmacy—
   Pharmacy; chemistry; materia medica; prescription practice.

The following general departments of instruction are maintained in connection with the above: English, Mathematics, Modern Languages, History, Economics, Education, Military Training, Physical Education.

In addition to the departments of instruction, the University has three other separate branches of great importance to the public, viz:

The Agricultural Experiment Station, organized under the act of Congress approved in 1887 "to promote scientific investigation and experiments respecting the principles and applications of agricultural science," supplemented by later acts of Congress and of the State Legislature. The Experiment Station is a scientific bureau not concerned with teaching students, with an independent staff of scientific workers and separate funds, and an extensive plant of offices and laboratories. Its functions are closely related to the School of Agriculture and its work is of great interest and value to both students and instructors in this school.

The Department of Agricultural Extension organized under Act of Legislature of 1911, has for its function the extension of knowledge, carrying the work of the Experiment Station and the School of Agriculture to persons not in attendance at the University. Its activities are manifold and various, reaching hundreds of thousands of farmers and others seeking elementary knowledge of agricultural practice and rural betterment.

The Engineering Experiment Station, organized in February, 1917, by the authorization of the Board of Trustees, to conduct researches in the field of engineering, to cooperate with engineering societies in conducting industrial investigations, and to publish and distribute the results of such investigations in the form of bulletins. The Station has been organized with a director, board of management and working staff, and has already undertaken important investigations. There are available for this purpose the extensive engineering laboratories of the University and the services of the engineering staff of specialists, some fifty in number.

BUILDINGS

The University is equipped with over thirty buildings, of which the more important are included in the following list:

The Armory, the construction of which was completed in 1918, is a large brick structure with limestone trimming and red tiled roof over a ground area of 48,720 square feet. It includes a drill hall with a clear area of 240 by 168 feet and a height of 60 feet at the centre, the roof being carried by eight pinned trusses. This provides for the drilling of six entire companies at one time. An office building, 50 by 168 feet across the entire front of the hall, provides offices for the staff, six drill rooms for single companies, a band room, a shooting gallery, etc.

Eliza Fowler Hall, the gift of Mrs. Eliza Fowler, of La Fayette, is a decorative and dignified stone building surmounted by a red tiled roof, situated in a grove near the center of the campus. It contains a large auditorium, in which are held all public exercises of the University, including frequent lectures and concerts. A large three-manual organ, the gift of Mr. James M. Fowler, of LaFayette, adds to the value of the building as a refining and cultivating agency. In the building are also the rooms of the trustees, the president, and the faculty.

The General Library is housed in a white stone building erected in 1912 at a cost of $100,000. The building is 120 feet by 90 feet, and contains on the ground floor a study and a lecture room; on the second floor a reading room, 116 feet by 40 feet, seating 180 readers; a newspaper room; a conference room, and library work rooms and offices. On the third floor are seven seminar rooms. The book stack is capable of shelving 100,000 volumes on five levels.

University Hall is a large brick structure of three stories and a deep basement. While it contains recitation rooms and the halls of the literary societies, it is chiefly an administration building, having the offices of the Registrar, the Bursar, the Purchasing Agent, and the Superintendent of Buildings.

Purdue Hall is a large four-story brick building, containing recitation rooms and offices for the Mathematics, Modern Language and other departments.

The Ladies' Hall is a two-story brick building of attractive appearance. On the lower floor are rooms of the departments of Art and Home Economics, while the rest of the building is occupied as a dormitory for women students.

The Memorial Gymnasium, erected in 1908, in memory of almost a score of students who lost their lives by a railroad accident in October, 1903, is a large structure of dark colonial brick with Bedford stone trimmings and a tile roof. It has a ground area of 165x85 feet, with a front projecting portion 70x35 feet. It contains a gymnasium hall with an unobstructed floor area of 160x80 feet, and an overhead running track of nearly 500 feet. The basement, 14 feet in height, provides for a 60x30-foot swimming pool and bath, dressing, and locker rooms, with provision for 2,000 lockers. The building contains, also, trophy, lounging, and committee rooms, and the office of the Department of Physical Education.

Central Power, Heating and Lighting Plant.—This building contains the extensive apparatus for generating light, heat, and power for the University buildings and laboratories. The installation represents the most recent approved engineering practice and, aside from its direct utility, is a valuable feature of the equipment for instructional purposes.

In connection with the power plant is a two-story service building of brick, equipped with iron and wood working machinery suitable for repair work for buildings and equipment.

The Mechanical Engineering Building, which the University owes largely to a bequest of Mr. Amos Heavilon, a citizen of Clinton county, is occupied by the departments of Mechanical Engineering and Applied Mechanics. It consists of a three-story brick and stone front, to which are joined several one-story wings. The main building contains offices, lecture, recitation, design and computing rooms, and an instrument room which serves the steam engine and gas engine laboratories. The one-story wings contain the steam engine, gas engine, Master Car Builders', cement, hydraulic, materials testing and air brake laboratories and the automobile testing plant. An annex, which in effect constitutes a portion of this building, is devoted exclusively to the work of locomotive testing.

The Electrical Engineering Building is a three-story structure of dressed stone and brick to which is joined a one-story brick structure with basement. The first floor of the main building contains rooms for standard instruments and calibration laboratories, a seminary room, and offices. The second floor contains the rooms for design, lecture and recitations, and offices. The third floor is occupied by the telephone and photometric laboratories. The one-story wing of the building includes the general dynamo laboratory served by an electric traveling crane and connecting with a lecture room with seating capacity for three hundred persons, and apparatus and stock rooms.

The Civil Engineering Building is a stone and brick structure of two main stories and a top or attic story. The first story is devoted chiefly to a field instrument room, and drafting and computing rooms for the use of classes in surveying, topography and railway curves. The second floor includes a large assembly room, recitation rooms, and offices for the departmental staff. The third floor consists of two large drafting rooms lighted both from the sides and from above. The upper floor contains also a blue print room, a photographic dark room, and offices for instructors.

The Practical Mechanics Building, erected in 1909, consists of a three-story brick structure in front, and two large one-story brick wings containing shops, lecture and locker rooms.

The first floor of the main building contains a lecture room, two recitation rooms and the offices.

The second and third stories contain the drawing rooms for the sophomores and freshmen, with offices. The one-story wings contain a large corridor which serves as a museum, the wood shop, foundry, forge shop and machine shop, and in the basement wash and locker rooms. Each shop has attached a demonstration room, store room and office.

The Chemistry Building is a stone and brick rectangle, 156 by 70 feet, with three working floors and an attic, well lighted and ventilated. It contains five general students' laboratories, seven special laboratories, and five private laboratories and offices; a lecture room seating 440, and three class rooms; also, a department library, two balance rooms, and supply rooms.

The Physics Building is a stone and brick building of two stories over a high basement. In the basement are three laboratories fitted with stone piers, seven dark rooms, a storage battery, and a work shop. The first floor is occupied by two general and several special laboratories, an apparatus room, and offices. On the upper floor are a lecture room with a capacity of three hundred students, a preparation room, four recitation rooms, and offices. The wiring and switchboard afford excellent facilities for the manipulation of electric currents of all kinds.

The Biology Building, erected in 1916, is a stone and brick structure, with three working floors, well lighted and well ventilated. It contains six general student laboratories, each lighted on three sides; five special laboratories; nine class rooms; a lecture room, 54x60 feet; departmental and administrative offices; a museum and herbarium; an animal room; stock rooms, etc. The building is 175x125 feet, and is modern in every particular.

The Science Annex is a new brick building, located just east of the Pharmacy building. This building provides recitation rooms, department offices, and laboratories for sewing and work in nutrition for students in Home Economics.

The Pharmacy Building is of brick, two stories in height. It contains lecture room, balance room, storeroom, offices, preparation rooms, pharmacognosy and prescription rooms, and general laboratories.

The Agricultural Experiment Station Building consists of two stories and a basement, constructed of brick with stone trimmings and a tile roof, with reinforced concrete floors, iron and slate stairs, and is of fireproof construction throughout. It is one of the largest buildings on the campus, and one of the best buildings in the United States devoted exclusively to experiment station work.

Agricultural Hall is a substantial, two-story structure of brick and stone over a high basement. The building contains soils, crops, horticultural and entomological laboratories, and class rooms; also a large assembly room, a room for the Agricultural Society, a herd book library, and offices for the members of the Faculty of the School of Agriculture.

SMITH HALL, a new dairy building, was made possible by a bequest of Mr. W. C. Smith, late of Williamsport, Indiana. The building is of brick and stone, with reinforced concrete floors and tile roof. It covers three-eighths of an acre of ground and has one-half acre of floor space. The building consists of a front part of two stories, 60x120 feet, a rear part of 72x118 feet, and a connecting building of 23x30 feet. The building contains offices, lecture rooms, laboratories, rooms for making butter, ice cream and cheese, and also a commercial creamery, with locker and toilet rooms, etc.

THE FARM MECHANICS BUILDING is a two-story brick building. On the first floor are two large laboratories, one of which is devoted to heavy farm machinery, and the other to work with cement. On the second floor there is a light farm machinery laboratory, a large well-lighted drawing room, and two class rooms. In the building there are also offices, small laboratories, and locker and tool rooms.

THE VETERINARY BUILDING contains offices, well equipped laboratories and class rooms, an amphitheater where the clinic is held, and stalls for horses. The building is of brick with reinforced concrete floors.

THE GREENHOUSE, constructed in 1914, offers the most advanced opportunities for instruction in vegetable gardening, floriculture and other horticultural courses. The plant consists of four houses, each 36x100 feet, of the detached type, all of steel flat-rafter construction, connected with a service house, 112x40 feet, and connected with each other by a corridor house, 14x107 feet. The various units in the range may be managed independently and are adapted to the growing of both warm-house and cool-house flower and vegetable crops. The area under glass embraces 16,000 square feet of ground space.

The service building is a one-story brick building with tile roof, fitted for laboratory work, plant propagation and general greenhouse work. It contains demonstration and lecture rooms, office and store rooms, and boiler equipment for heating the entire plant. The heating apparatus consists of an independent plant, with two 40-horse power, high-pressure steam boilers. The entire plant is arranged primarily for purposes of instruction.

THE DAIRY CATTLE BARN exemplifies the modern features of a sanitary barn for dairy cattle. The floors and mangers are concrete. Patent stalls of the James type; the King system of ventilation; good light, drainage, and facilities for sanitary handling of milk are features of the structure.

THE LIVESTOCK JUDGING PAVILION is a brick building with tile roof and steam heat located in the center of a group of buildings at the farm. The ground floor is occupied by an office and sleeping rooms for the Superintendent of Livestock, wash and locker rooms for students, a boiler room and a large judging arena with tan bark floor, 120x40 feet, around which are 1,000 seats arranged in amphitheater. The space under the seats on the south and west is occupied with box stalls with outside doors, while that on the north and east is given up to preparation and demonstration rooms. A large class room occupies the second floor of the front part of the building.

POULTRY BUILDINGS are described under the Poultry Equipment on a following page.

OTHER FARM BUILDINGS are a cattle barn with paved lots and sheds especially designed for experimental steer and lamb feeding; a sheep barn, affording accommodations for both breeding and feeding; a piggery, arranged for the feeding and breeding of swine, and a tool barn well supplied with farming implements.

MATERIAL EQUIPMENT

AGRICULTURAL EQUIPMENT

Agronomy.—The agronomy equipment consists of lecture rooms and laboratories with modern appliances for instruction in soils, crops, agricultural chemistry, agricultural botany, farm mechanics and farm management.

THE SOILS AND AGRICULTURAL CHEMISTRY LABORATORIES, which are located in the Agricultural Building, are equipped with suitable desks and all kinds of apparatus necessary for a comprehensive study of the physical properties of soils and for the work in agricultural chemistry, which includes chemical studies of soils, fertilizers and plant and animal products.

THE FIELD CROPS AND AGRICULTURAL BOTANY LABORATORY, located in the Agricultural Building, is equipped with supplies of different varieties of corn, wheat, oats and other seeds for scoring and grading exercises, specimens of important weeds, collections of weed seeds and samples of adulterated seeds for weed identification, and apparatus for making germination and purity tests of seeds.

THE FARM MECHANICS LABORATORIES include two large rooms equipped with various kinds of light and heavy farm machinery, such as gasoline engines, tractors, plows, harrows, cultivators, drills, planters, harvesters, pumps and other equipment for instruction in the use, care, adjustment and repair of all kinds of farm machinery; a cement laboratory for instruction in the proportioning and mixing of concrete for making foundations, floors, walks, posts, and other kinds of concrete work, and a drawing room for instruction in the designing and construction of farm buildings.

Animal Husbandry.—The equipment for instruction in Animal Husbandry consists of a farm of 385 acres, a stock judging pavilion, well bred herds and flocks of all classes of livestock, and veterinary laboratories and a museum.

THE LIVESTOCK includes purebred herds of Angus, Shorthorn and Hereford cattle; Poland China, Berkshire, Duroc Jersey, Chester White and Yorkshire swine; flocks of Shropshire, Hampshire, Southdown, Dorset Horn, and Rambouillet sheep, and good specimens of purebred Belgian, Percheron, Shire and grade draft horses. With the experimental cattle and sheep on the farm, there are available over 500 head of livestock for breeding, feeding and judging work. Through the courtesy of J. Crouch & Son, unusual opportunities are offered for the study of purebred draft and coach horses.

THE VETERINARY EQUIPMENT consists of well equipped laboratories for bacteriological and pathological studies in connection with animal diseases, and skeletons and models of the different domestic animals. Pathological specimens, and a collection of animal parasites are available for instructional work.

Dairy Husbandry.—The Dairy Husbandry equipment consists of a large modern fireproof building which includes dairy laboratories, a commercial creamery (cold storage), class rooms, offices, and a dairy barn and herd.

THE DAIRY LABORATORIES are equipped with farm and factory size machinery for making butter, cheese and ice cream and for testing milk and milk products.

THE PURDUE CREAMERY is equipped with modern creamery machinery and manufactures butter from milk and cream supplied by about 200 patrons.

THE DAIRY HERD consists of pure blood Jerseys, Holsteins and Ayrshires which are used for instructional and experimental purposes in Dairy Husbandry. The herd is housed in sanitary stables, equipped with modern stalls and stanchions, accommodating thirty-five or forty milch cows and fifteen to twenty head of young stock. A suitable shed is provided for the bulls. Two feed rooms, two silos of 280 tons capacity, a sanitary milk room and a judging pavilion complete the equipment of the dairy barn.

Entomology.—The entomological equipment, located in the Agricultural building, consists of a collection of about 1,000 species of insects carefully mounted and classified for the comparative study of beneficial and injurious forms of insect life. Simple and compound microscopes are provided for the minute study of such insects.

Horticulture.—The horticultural equipment consists of laboratories and lecture room, a modern greenhouse plant, and about ten acres of land devoted to orchards and gardens which are so administered as to make them of the greatest instructional value.

THE HORTICULTURAL LABORATORIES, located in the Agricultural building, are equipped for the study of spray materials and accessories, plant propagation and systematic pomology.

THE ORCHARD AND GARDEN cover ten acres of land devoted to horticultural crops, comprising variety collections of apples, pears, plums, cherries, and peaches. These are being added to each year and are of especial value to students of pomology. An apple orchard consisting of about six acres serves as a practical outdoor laboratory for instruction in pruning, top grafting, spraying, etc. A portion of the ground is devoted to student gardens, where each student is required to grow and study garden vegetables and familiarize himself with the operations of garden management.

The garden and orchards belonging to the Experiment Station, some seventeen acres in extent, include a small commercial orchard and extensive variety collections of strawberries, raspberries, blackberries, currants and gooseberries, and about three acres devoted to experiments with vegetables. These collections are of decided educational value for students.

Poultry.—The poultry equipment consists of a tract of 17 acres of land; a two-story 30x50 feet poultry building, steam heated and electric lighted; equipped with incubators, and separate egg, killing, feed and storage rooms, an experimental laboratory, men's quarters and office; and an 18x44 feet fully equipped incubator cellar over which is a store room for teaching equipment. There are also eight double poultry houses each 10x24 feet equipped with practical hoppers, trap nests, etc.; one laying house 14x200 feet, divided into 20 pens; a hot water heated brooder house 14x100 feet, divided into 23 compartments; thirteen Colony brooders and summer houses. There is also a flock of 500 S. C. White Leghorns, 165 White Plymouth Rocks, and 60 Barred Plymouth Rocks for experimental work; and 22 other varieties of poultry for instructional purposes.

ART EQUIPMENT

THE UNIVERSITY LIBRARY has a good collection of books and current periodicals relating to the subject, giving an opportunity for reference work in Art History, and from time to time exhibits collections of works of art.

BIOLOGY EQUIPMENT

The equipment is of a modern type and is ample for the lines of work undertaken. In the laboratories for advanced and special work the apparatus is duplicated in order to permit of individual work or of work in small sections.

VEGETABLE PHYSIOLOGY AND PATHOLOGY LABORATORY.—The equipment includes, in addition to the more usual chemical and physical apparatus, special pieces for the study of the relation of gravity and light to changes in the direction of growth; for determining the force exerted by growing organisms; for investigations in respiration and transpiration; and for many other phenomena of plant life. An ample bacteriological outfit permits the study of life histories by the pure culture methods. A small herbarium of fungi is open for consultation.

BACTERIOLOGY AND HYGIENE LABORATORY.—A complete bacteriological laboratory, equipped with apparatus of the most modern type, provides for teaching and research work in medical and sanitary bacteriology. Special apparatus is provided for the study of problems connected with public hygiene and preventive medicine.

The laboratory is supplied with facilities for pursuing such special medical phases as serum diagnosis, study of opsonins and vaccine therapy; and experimentation on animals.

For the work for sanitary engineers the laboratory is equipped with materials and apparatus used in the microscopical analysis of drinking water, testing bacterial efficiency of filters, etc. For the study of fermentation, dairy bacteriology and other problems in industrial biology, apparatus especially designed is provided.

ANATOMY LABORATORY.—The anatomical laboratory offers facilities for a thorough course in human osteology and also for the laboratory study of a general mammalian anatomy. Dissection upon the cadaver is provided for students taking the course in medicine.

PHYSIOLOGY LARORATORY.—The physiological laboratory is equipped with the usual apparatus for physiological experimentation, including kymographs and myrographs for recording results; electrical apparatus for stimulating living tissues; time recorders, and instruments of precision for studies in animal electricity, the central nervous system, the special senses, respiration, the circulation of the blood, etc. The equipment also includes a full set of the usual clinical instruments.

ILLUSTRATIVE MATERIAL.—The collections, while not large, are sufficient for ordinary illustration and are ample for the work of the various subjects administered by the department. The "A. W. Butler Collection of the Lower Vertebrates of Indiana," the most complete in the State, has been deposited with the University by Mr. Butler and is available for study and comparison.

CHEMICAL ENGINEERING EQUIPMENT

Instruction in Chemical Engineering is divided among the various departments of the University, their equipment being available for students taking this plan of study. Reference is made in particular to the description of equipment in Chemistry.

CHEMISTRY EQUIPMENT

The laboratories provide individual accommodation and equipment for the instruction of 864 students in general chemistry, 240 in qualitative analysis, 144 in quantitative analysis, 96 in organic chemistry, and 14 in physical chemistry.

The building is provided with automatic steam heat regulation, ventilating flues from all rooms to a fan and central ventilator in the roof, a still and storage tank in the attic distributing distilled water to all floors, a power blower and vacuum pump for air blast and suction, and a hydrogen sulphide generator supplying forty openings in the qualitative analysis laboratory.

The following special rooms may be mentioned:

THE DEPARTMENT LIBRARY accommodates 20 readers at tables and contains miscellaneous books on chemical subjects and complete or nearly complete files of 18 chemical journals, numbering about 1000 volumes; also, the current numbers of 17 important journals, besides government bulletins.

BALANCE ROOMS.—The main balance room adjoining the quantitative analysis laboratory contains 46 analytical balances of various types, a large precision balance, and an assaying balance. Other rooms contain 6 analytical balances, and numerous other forms for special purposes and general laboratory use.

ELECTRO-ANALYSIS LABORATORY.—A storage battery of 24 cells with general switchboard, voltmeter, ammeter, and rheostat, distributes current to 6 individual desks, each with similar equipment and an electric motor for rotating electrodes.

METALLOGRAPHY EQUIPMENT.—Apparatus for preparing metals for microscopic examination; metallographic microscope and camera with arc lamp for illumination; electric furnace and recording pyrometer for obtaining cooling curves and for heat treatment of specimens.

THE WATER ANALYSIS LABORATORY is isolated from other laboratories to ensure pure air, and provided with the usual equipment for sanitary chemical water analysis.

Gas Analysis Laboratory.—The equipment consists of standard apparatus of Hempel, Orsat, and other types.

The Dark Room is used for photographic and other operations requiring modified light.

Assaying Laboratory.—Grinding and sampling apparatus, crucible and muffle furnaces of different types, using gasoline as fuel, and a pulp balance, are used for the assay of gold and silver ores.

Other Special Equipment includes projection lanterns, crushing and grinding machinery, gas and electric combustion furnaces, combustion calorimeters, polarimeters, polarizing microscope, refractometers, spectrometer, viscosimeter, electric thermostat, molecular weight and other physical chemical apparatus, and special apparatus for analysis of oils and asphalt, and for the Kjeldahl nitrogen determination.

CIVIL ENGINEERING EQUIPMENT

Field Instruments.—For work in the field the department possesses thirty-one engineers' transits and twenty-eight wye and dumpy levels, representing the principal types of instruments in general use. In addition to these the equipment includes a photographic surveying outfit, four plane tables, five traverse tables, five compasses, sixteen hand levels, clinometer, two aneroid barometers, three prism binoculars, etc., besides an ample supply of flag poles, leveling rods, stadia rods, chains, tapes and other accessories. For Higher Surveying there is a ten-inch altazimuth instrument reading to single seconds, two transit theodolites reading to ten seconds and one reading to twenty seconds, a precise level, two semi-precise levels, one biaxial level, two precise level rods, five solar attachments, six sextants, one one-hundred foot Invar tape for base line work and a four-inch equatorial.

The scope of the equipment and the field work itself are designed to train the students' judgment as to the relative merits of the various types of field instruments. An important feature of the instrument room is an improved system of cases which provides a separate locker for each instrument outfit.

Hydrographic Instruments.—For Hydrographic field work the department possesses two standard current meters complete and a U. S. chain river gauge. Rating current meters and determining vertical velocity curves and the discharge of the Wabash River, by meter readings, and by surface and submerged floats, constitute a part of the work in hydrography.

Design and Drafting Rooms.—The department possesses well-equipped rooms for the carrying on of the designing and drafting which form so important a part of civil engineering work. These are supplied with files containing blue prints and photographs of structures that represent the best practice. The drafting rooms are equipped with useful models of engineering structures and details, a universal drafting machine, and a complete outfit of computing machines.

The Laboratory for Testing Materials is equipped for the delicate measurements of scientific research, for the determination of the physical properties of materials of construction, and for tests on manufactured pieces requiring machines of large capacity.

The equipment includes eleven universal testing machines of standard construction, ranging from 15,000 pounds to 300,000 pounds capacity, for tension, compression and flexure tests. Two torsion machines and an Olsen staybolt testing machine are also included. Other machines are designed to serve in determining the behavior of materials under shock. These impact testing machines may be used for tension, compression and flexure, and have a capacity equivalent to a blow delivered by an 800-pound weight falling through a distance of 10 feet. They are arranged to give an automatic record of the circumstances of the test in the surface of a revolving drum. These machines were designed and constructed at the University. There are two abrasion testing machines for subjecting paving bricks and similar materials to the so-called "rattler test." The various machines used in testing road materials are provided, and include a Page-Johnson machine for the cementation test, a Daval abrasion machine, a standard toughness tester, and a Dorry hardness machine. The cabinet of the laboratory contains a collection of extensometers, gauges and scales, and also a library bearing on the subject of the testing of materials.

A special cement laboratory with concrete tables, hardening tanks and other fixtures, houses the usual equipment for testing cements, cement mortars, and concrete, including four automatic testing machines and a liberal supply of moulds, sieves, scales and similar apparatus.

The southeast wing of the Engineering Laboratory building is equipped for experimental work in Hydraulics. The main floor, 45x115 feet in plan, contains equipment as follows: a concrete channel 6 feet deep and 43 feet long, 8 feet wide for 35 feet and 5 feet wide for 18 feet, equipped with 8 and 5 foot weirs and a 50,000 pound weighing tank in a scale pit at the end; a concrete reservoir below this channel 9 feet deep, 5 feet wide and 72 feet long; a concrete channel 3x3 feet and 100 feet long, equipped with weirs and a track and carriage for rating current meters; a concrete reservoir at the end of this channel with a capacity of 1600 cubic feet; three concrete tanks for volumetric measurement; one twenty-inch motor-driven, single-stage centrifugal pump, capacity 10,000 gallons per minute; one six-inch motor-driven, two-stage centrifugal pump, capacity 1,200 gallons per minute against a 250-foot head; one five-inch, two four-inch, and one two-inch, single-stage centrifugal pumps, belt-driven from a 15 H. P. motor; one two-inch rotary pump; one two-inch triplex plunge pump; a six-inch main pipeline around the laboratory; a six-inch Venturi meter; a hydraulic ram; a pipe rack for measuring friction losses in pipe ranging from one to six inches in diameter; a reaction tank.

Around three sides of the laboratory is a balcony 15 feet wide containing the following equipment: one 12-inch horizontal turbine; one 6x9 foot cylindrical tank; three small impulse wheels with glass sides; orifice, short tube and weir tanks; meter table with three house meters; and a completely equipped office. The instrumental equipment consists of orifices, tubes, pressure gauges, differential gauges, pitometers, Pitot tubes, current meters, scales, tanks, etc.

All apparatus is connected up and ready for operation, being thus available for student use in laboratory courses, class room demonstration, thesis work, and research.

ELECTRICAL ENGINEERING EQUIPMENT

DYNAMO LABORATORY.—The dynamo room of the Electrical Laboratory contains about 30 generators and motors of various makes and capacities, the number including direct and alternating current machines of all the various types. The equipment for alternating current work includes single and multiphase generators, synchronous and induction motors and transformers.

The power used in the electrical laboratory is furnished by a motor generator set supplied with power from the central power station. This set consists of a 75 h. p. synchronous motor direct connected to two 25 k. w. 125 volt direct current generators which may be used either independently or connected to a three-wire distributing system. The motor generator set also operates a 30 k. w. alternator which is available for laboratory experiments where a variable voltage is required.

A 75 k. w. two-phase generator with transformers for changing to three-phase at 2,300 volts, together with a 250 k. w. 2,300 volt three-phase alternator direct connected to a 375 h. p. engine, located in the central heating and power plant, are available for experimental work in alternating currents; and a 125-250 volt three-wire direct current motor generator set of 25 k. w. may be used in direct current experiments. A 5-panel switchboard in the power station controls the above electrical equipment and the outgoing 2,200 volt feeders supply light and power to the various buildings of the University. This switchboard is a typical example of modern construction and is used for demonstration and laboratory instruction.

A 10-ton 3-motor electric crane serves the main dynamo room and makes it possible to arrange with ease any desired combination of generators and motors. It is also possible, by means of the crane, easily to convey apparatus from the laboratory to the large lecture room adjacent thereto. In this way, demonstrations can be made to the students, which greatly facilitates subsequent work in the laboratory. The crane is also a valuable piece of apparatus for direct experimentation.

Numerous large and well-appointed switchboards are provided for interconnecting the various machines and instruments in the laboratories. Trunk lines run from the main switchboards of the laboratory to the various secondary boards about the building, so that the students are able to interconnect any desired combination of machines and instruments. The dynamo laboratory is well equipped with accessory apparatus for instructional work, such as instruments, rheostats, dynamometers, brakes, etc. There are also numerous special instruments and appliances, useful for both instruction and research.

A standardization laboratory is equipped with storage battery, potentiometers, Kelvin balances and instruments of precision.

Electrical Railway Test Car.—The body of the test car, "Louisiana," which was used for electrical railway tests at the St. Louis Exposition, has been equipped with interurban double trucks, four 50 h. p. motors, and modern control apparatus, and is located over a concrete pit in the electrical laboratory, where it is available for experiments and thesis investigation in electric railway engineering. The car pit track is connected with the tracks of the various interurban lines entering LaFayette so that the car can be tested under actual running conditions and, in addition, may be used for tests on the distributing systems of the various electric railway companies of the State.

HIGH TENSION LABORATORY.—A large room is fitted up as a high tension laboratory including a high tension testing transformer, enabling laboratory experiments, tests and research work to be carried on with voltage up to 300,000 volts, which are far in excess of those at present used on high tension transmission systems. High tension bus bars extend the length of the laboratory, supported upon suspension insulators. These bus bars may be connected with the experimental high tension transmission line or with the various condensers, needle and sphere spark-gaps and other measuring devices in the laboratory.

HIGH TENSION TRANSMISSION LINE.—An experimental high tension transmission line has been constructed on steel poles extending for a distance of 2,000 feet north of the University, so designed that investigations may be carried on with the use of the above transformer under practical transmission line conditions with voltages up to 300,000 volts.

TELEPHONE LABORATORIES.—The telephone laboratories are especially well equipped with a large collection of transmitters, receivers, induction coils, generators, bells, jacks, drops, keys, relays, condensers, lamps, etc., obtained from the Automatic Electric Co., Frank B. Cook, Dean, Kellogg, Sterling, Stromberg-Carlson, Sumter, Western Electric and other factories.

A 3-panel slate power switchboard controls the storage battery and other incoming power and is the center of distribution for circuits running to every portion of the two laboratories. A number of galvanometers and bridges and other apparatus for testing and fault location are included in the equipment, together with a 100-pair lead covered cable.

PHOTOMETRIC LABORATORIES.—These laboratories comprise several dark rooms for photometric work proper and a room for the demonstration and comparison of illumination effects of various light sources and systems. The wiring and experimental circuits of these rooms have recently been renewed and new switching arrangements installed at considerable expense, adding much to the facility with which work may be carried on.

The rooms are served by switchboards conveniently located and interconnected by trunk lines. The boards are supplied with a. c. and d. c. power by permanent connection with the laboratory feeders.

A storage battery whose switchboard is also connected with those previously mentioned is located in an adjacent room.

The equipment includes several Bunsen photometers; two Lummer-Brodhun photometers; one Matthews photometer for the determination of total light flux from arc lamps, and one for determining the same quantity for incandescent lamps; rotating apparatus, Hefner lamps, electric standards, automatic recorders, and other appliances for the study of light sources. Recent valuable additions to the above equipment have been: A Sharp-Millar universal photometer for portable use in the measurement of illumination; a Lummer-Brodhun photometer of the contrast type (imported); a Beckstein Flicker photomoter, also imported; a Universal rotator; and a number of incandescent lamp candle-power standards of various sizes. The equipment also includes arc lamps of recent design and a number of units representing various indirect and semi-indirect lighting systems.

Design Rooms.—Two rooms on the second floor of the Electrical Engineering Building are used for the classes in electrical design. These rooms have a complete equipment for carrying on work of this character. They are lighted by distributed cornice lights in order to minimize the distributing effects of shadows.

Electrical Engineering Museum.—A spacious corridor leading to the main laboratory is used in part as a museum and contains a collection of materials and apparatus of interest to the electrical engineering student. An exhibit of telephone apparatus showing the evolution of the independent telephone from the early and crude acoustic forms to the modern instrument is of particular interest.

HOME ECONOMICS EQUIPMENT

There are five laboratories located in Ladies' Hall and Science Annex. Three of these are fully equipped for the study of food materials and their preparation. Each student has a desk supplied with hot and cold water and the ordinary cooking utensils. Another laboratory is devoted to sewing. It is well equipped with tables, chairs and sewing machines. The chemistry laboratory is equipped for the study of foods from a dietetic and nutritive standpoint.

Charts, exhibits and books are found in the laboratories and are used to illustrate different phases of the work given.

THE UNIVERSITY LIBRARY

The Library of the University offers unequalled opportunities for undergraduate work. The large reading room, seating 180 persons, the study room, lecture room, conference room, newspaper room and similar rooms furnish every facility for the enjoyment and the use of books. The University recognizes that experience in the use of books and periodicals is an essential part of the training of the engineer and the scientist. In his various courses the student is constantly being referred to books which he is either recommended or required to read. The library's collections have been chosen with special reference to the lines of work offered by the University and it is strongest, therefore, in Agriculture, Science and Engineering. It also has good working collections in History, Economics, Literature, Domestic Science and Art, together with plenty of good reading in fiction, travel and biography for a student's leisure hours.

The University Library comprises in all about 50,000 volumes, contained in the General Library, one Departmental Library and several deposit collections. About 400 periodicals are regularly received, while the several publications of societies, institutions, State and Federal governments bring the total number of such publications well over one thousand. The library is a depository for the publications of the Federal government.

The Chemistry Library in the Chemistry Building contains about 1000 volumes of books and periodicals. Both the current numbers and the bound sets of chemical journals are kept in the departmental library.

The current numbers of about 75 agricultural papers are kept on file in the Agricultural Building. Here also is the collection of herd records and registers, numbering about 1000 volumes.

The library of the Indiana Experiment Station may be used by members of the faculty and by advanced students. It contains a very complete collection of bulletins and other publications of the various State Experiment Stations, valuable sets of periodicals and important works of reference on agricultural subjects.

The library is indebted to many persons and institutions for valuable gifts, the most important of these gifts being a fund provided for a number of years past by Dr. G. F. Keiper, of LaFayette, in memory of his father, Dr. C. B. Keiper. This fund has enabled the library to purchase many valuable volumes on physiology, medicine and kindred subjects.

The General Library is open each week day from 7:50 a. m. to 9 p. m., and every assistance is rendered students in their use of library material.

Lectures on the use of the library are given to the members of the freshman class early in the year and a library manual is distributed to them. Other lectures are given from time to time to various groups of students on the literature of special subjects.

MECHANICAL ENGINEERING EQUIPMENT

STEAM ENGINE LABORATORY.—The apparatus for work in steam engineering consists largely of typical engines, each so arranged as to be run under a variety of conditions. Each engine has its individual brake for measuring the power delivered, surface condenser, and weighing tank for obtaining a record of the amount of steam used. Altogether, there are forty steam cylinders aggregating about 1,500 horse-power, twenty-one friction brakes, which together are capable of absorbing 1,500 horse-power, and twelve surface condensers.

The principal units are as follows:

A McEwen tandem compound steam engine having cylinders 8½ and 14 inches in diameter and a stroke of 12 inches.

A Harris-Corliss triple expansion engine with cylinders, 8, 15 and 22 inches in diameter by 24 inches stroke.

A simple Allis-Corliss engine, 8 by 24 inches, direct- connected with a centrifugal pump.

A two-stage Ingersoll-Rand air compressor, with compound steam cylinders 11 and 19 inches in diameter, air cylinders 16 and 10 inches in diameter, and a common stroke of 14 inches. The air discharge can be metered and is used for various purposes throughout the laboratory.

The engines of a Baldwin compound locomotive mounted upon a fixed foundation, having high pressure cylinders 9½ inches in diameter, low pressure cylinders 6 inches in diameter, and a stroke of 18 inches.

Several smaller engines are available for indicator work and efficiency experiments. There are two DeLaval steam turbines of 10 and 20 horse-power, the former fitted with a friction brake, the latter being connected directly to a three-stage centrifugal pump and supplied with steam from a Foster superheater.

The laboratory also provides facilities for conducting heating and ventilating experiments, including such subjects as efficiencies of furnaces, boilers, radiators and valves, efficiencies of blowers and fans, loss of heat through insulating materials, operation of the steam loop, and air washing and purifying. A complete hot water heating plant forms a part of the laboratory equipment. Facilities for testing of lubricants are also located in this laboratory.

The instrument room contains apparatus for measuring pressure, temperature and flow of steam, thermometers, pyrometers, calorimeters and steam and gas engine indicators, together with suitable apparatus for their calibration. In addition to the apparatus mentioned above, the laboratory also contains a standpipe, 34 feet high, having a closed top and measuring tank, for use in experimental work on steam pumps.

Gas Engine Laboratory.—Each of the internal combustion engines contained in the gas engine laboratory is fully equipped as an independent plant. The principal units are an Otto gas engine of 10 horse-power, a single cylinder Fairbanks-Morse engine of 20 horse-power, using either gasoline or kerosene; a Meriam-Abbott engine of 18 horse-power, using either artificial gas or gasoline; a two-cylinder four-cycle 16 horse-power Continental automobile engine, a two-cylinder two-cycle 14 horse-power Emmons marine engine, a 5 horse-power Mietz and Weiss oil engine, a 5 horse-power Alamo gasoline engine, a two-cylinder, vertical, 25 horse-power International Harvester gasoline engine, and a two-cylinder 50 horse-power Fairbanks-Morse engine, receiving gas from a producer of the suction type. Closely allied with this apparatus is a 6-inch Rider hot air pump and a four-cylinder Marmon motor, the gift of the Nordyke Marmon Company. This is equipped for special work on carburetors and, with the Diehl Electric Dynamometer, completes the apparatus.

The miscellaneous equipment includes various types of meters, a five-foot meter prover Orsatt apparatus, an econometer, a coal calorimeter, and a Junker gas calorimeter.

Locomotive Laboratory.—The Locomotive Laboratory is equipped for the reception of a locomotive in such a way as to allow its action to be studied and its performance tested while the engine is run under any desired condition of speed, load and pressure. Briefly, it may be said that the plan of mounting involves (1) supporting wheels which receive the locomotive drivers and turn with them; (2) brakes mounted upon the axles of the supporting wheels; and (3) a traction dynamometer to indicate the pulling force exerted by the locomotive. All parts of the mount are adjustable to receive any locomotive whatsoever. A number of different locomotives have been tested on the plant.

The friction brakes, four in number, have a combined capacity of 1,000 horse-power. The traction dynamometer consists of an Emery testing machine of special design capable of accurately weighing stresses as high as 30,000 pounds. The plant is well provided with accessory apparatus which serves to indicate or to register the performance of the locomotive under test.

The locomotive at present owned by the University, known as Schenectady No. 3, has 69-inch drivers and weighs 109,000 pounds. Its boiler may carry pressure up to 250 pounds and is equipped with a Schmidt superheater.

Automobile Testing Plant.—This plant consists of supporting wheels carried by axles running in fixed bearing so arranged that any automobile may be easily mounted upon them. When thus mounted, the automobile may be operated as upon the road. A friction brake and dynamometer serve to measure the power and indicate the tractive effort. The dynamometer which is attached to the axle of the machine serves to hold the machine in the proper position upon the supporting wheels. Air supplied by a fan is applied to the front of the machine and serves to lower the temperature of the radiator or condenser. The plant is supplied with all apparatus necessary for making complete tests on an automobile.

Flat Spot Machine.—This machine makes possible a study of the impact effect on the rail of a flat spot on a car wheel. It consists of a circular track which revolves under the car wheel. The impact produced by the flat spot is transmitted through the track by means of an oil plunger to a photographic registering device. The effect of flat spots of different lengths or eccentric car wheels revolving at different speeds may thus be studied.

Belt Testing Machine.—This machine or dynamometer, due to specially designed mechanism, measures the slip, tension and power transmitted in belt and pulleys under actual service. The maximum limits of the machine are, pulleys of eight feet in diameter, thirty foot centers and one hundred horse power capacity, thus making possible investigations of wide variation.

Power Plant.—The light, heat and power plant contains, in addition to two electrical units, six Stirling boilers of 250 horse-power each. All are equipped with Roney stokers and are served by machinery for automatically handling coal and ash. Efficiency tests may be made in connection with any or all of these boilers.

Railway Museum.—Through the courtesy of several railroad companies, a number of locomotives have been deposited with the

University and constitute the nucleus of a railway and locomotive museum.

The following are some of the engines on exhibition: An 8-wheel engine as built thirty years ago; a locomotive of the camel-back type; the historic locomotive "Daniel Nason," built in 1858, formerly operated on the Boston & Providence Railroad; the "Marmora," built in 1858, formerly operated on the Boston & Albany Railroad; the Pennsylvania engine, "Reuben Wells," built in 1868; several models of locomotives and cylinders; a stage-coach passenger car, formerly in service in New England.

MASTER CAR BUILDERS' LABORATORY.—The following pieces of apparatus, deposited at the University by the Master Car Builders' Association, are available for instructional purposes: (1) Brake Shoe Testing Machine, (2) Air Brake Testing Rack, (3) Drop Testing Machine, and (4) Hose Testing Equipment.

The brake shoe testing machine provides an apparatus capable of accumulating energy corresponding to that of a car and of transmitting this energy to the car wheel so that, through the application of a brake shoe to the wheel, this energy can be absorbed. The motion is imparted to the machine by a 70 horse-power engine. The tangential force resulting from the action of the brake shoe is measured by an Emery testing machine. Time intervals are obtained by means of a chronograph and changes of pressure are shown by a Boyer speed recorder. All records are made on a single piece of paper.

The air brake testing rack consists of a suitable framework upon which is mounted a complete air brake equipment for a train of 100 freight cars. The whole is especially arranged to give facility in testing under conditions similar to those prevailing in service.

The drop testing machine is designed for testing couplers, draft riggings, car axles and rails by means of impact. The detail to be tested is mounted upon a spring supported platen weighing 17,000 pounds and is subjected to the impact of a ram in the form of a steel mass weighing 1,640 pounds. The maximum distance through which the ram may fall is 50 feet. The machine is equipped with an air hoist for handling the materials to be tested and with a two-cylinder engine for raising the ram.

The hose testing apparatus, designed to test air brake hose in conformity with the standard specifications of the Master Car Builders' Association, includes a system of hydraulic cylinders for imposing a high pressure; also apparatus for applying the so-called stretching and friction tests.

MILITARY EQUIPMENT

The equipment of the Military Department consists of 8 field guns of 3-inch caliber with the caissons, sights, quadrants, tools, and spare parts necessary to complete the equipment of two batteries of light Field Artillery. In addition there is one of each of the following types of artillery: 155 mm. gun (G. P. F.); 155 mm. howitzer; 4.7-inch gun; French 75 mm. gun; British 75 mm. gun; and two types of American 3-inch guns. For fire control and topographical work there is an ample supply of telephones, radio, signaling, and mapping equipment. Motor equipment is supplied for tactical and maneuver purposes. This consists of trucks, tractors, motorcycles, and passenger cars. Machine guns, automatic rifles, and the personal equipment of a soldier are also furnished. The new armory with its large drill floor and demonstration rooms easily accommodates the cadet corps for class-room work and instruction during inclement weather.

PHARMACY EQUIPMENT

THE GENERAL LABORATORIES include three rooms adapted to general laboratory work in Pharmacy, Materia Medica, and Pharmaceutical Chemistry.

MATERIA MEDICA LABORATORY.—This contains cabinets of crude drugs, chemicals and preparations for inspection and identification by students. Besides these working cabinets, the School possesses an accurate reference cabinet containing specimens of crude drugs, roots, barks, leaves, seeds, etc., as they occur in the drug market.

THE PHARMACY AND PHARMACEUTICAL CHEMISTRY LABORATORIES are well equipped for instruction in the subjects pertaining to them.

PRESCRIPTION ROOM.—This room is thoroughly equipped with modern fixtures and apparatus. The careful compounding and dispensing of prescriptions is the culmination of the work of a pharmacy course; therefore, no expense or time has been spared in making this room one of the best equipped prescription rooms in the United States.

Storerooms are supplied with all apparatus, drugs, and chemicals necessary for the preparing and compounding of medicines; for qualitative and quantitative analysis, inorganic and organic; for the preparation of inorganic and organic compounds; and for the detection and estimation of adulteration in drugs, chemicals, and foods.

The students in the School of Pharmacy also enjoy the advantages of excellently equipped laboratories for instruction in Microscopy, Chemistry, Botany, Physiology and Bacteriology.

American Conference of Pharmaceutical Faculties.—The University holds membership in the American Conference of Pharmaceutical Faculties, the object of which is to promote the interests of pharmaceutical education. All institutions holding membership in the Conference are bound to maintain certain minimum requirements for entrance and graduation. Through the influence of this Conference, higher standards of education have steadily been adopted; and the fact that several states have by law or by Board ruling recognized the standards of the Conference is evidence of its great and beneficial influence.

PHYSICS EQUIPMENT

The main lecture room has a seating capacity of three hundred. The lecture table is equipped with a marble switchboard provided with two ammeters and rheostats with twenty-four terminals of various experimental electrical circuits, together with switches for operating the lights, the ventilating motor, and the motor for raising and lowering the shutters for darkening the room. The adjoining preparation room is supplied with a large equipment of modern demonstration apparatus.

In the variety and extent of their equipment the physical laboratories are unusually strong. Included in the equipment of the General Laboratory are two pieces of motor-driven apparatus for the determination of the lubricating qualities of oils at various loads and temperatures, viscosimeters of various types, and apparatus for the determination of the optical constants of thick lenses.

The Heat Laboratory is supplied with combustion bombs for the determination of the heat value of fuels, Junker calorimeters for the determination of the heat value of gases and liquids, apparatus for measuring the efficiency of pipe coverings, air thermometers and calorimeters of various types.

The laboratory of High Temperature Measurement is equipped with three 15 k. w. electric furnaces, several electric furnaces of smaller capacity, five large gas furnaces, radiation and optical pyrometers of the Fery, Thwing, Le Chatelier, Shore, Wanner and Holborn-Kurlbaum types, besides various thermo-electric and resistance pyrometers.

Besides an equipment of galvanometers, resistance boxes, sechometers, standards of resistance, capacity, and inductance, the Laboratory of Electrical Measurement is provided with three potentiometers with their accessories, a Thomson double bridge with circulating oil tank, a Kew magnetometer, two Ewing double bar and yoke permeameters, a Fischer-Hinnen permeameter, an Epstein permeameter, a Bureau of Standards permeameter of the Burrows type, and a Hughes magnetometer balance.

In the Physics Building there are ten small rooms set apart for special experimental work. One contains a complete standard gas photometer equipment, another contains a standard electric photometer, while others are equipped with spectroscopes, a Steinheil spectrograph, a Steinheil polariscope with photographic accessories, a Landoldt polarimeter, a Koenig-Martens spectro-photometer, and optical benches.

PRACTICAL MECHANICS EQUIPMENT

The Practical Mechanics laboratories are in a building that has been designed and equipped with reference to shop work and drawing room work; special attention having been given to lighting, heating and ventilation.

Wood Working Shop.—This room is equipped for cabinet making and pattern making. It has seventy benches, each of which is equipped with a vise and three separate sets of wood working tools. There are sixty lathes for wood turning, of medium size, and six large patternmakers' lathes; two double circular saws, one band saw, one band re-saw, one jig saw, one inverted swing saw, two surfacers, two jointers, a molding machine, a hollow chisel mortiser, a double head tenoner, a vertical boring machine, a back knife gauge lathe, a single spindle shaper, automatic sharpening and grinding machines, besides grindstones, emery wheels, trimmers, and such small tools as are needed in the work of cabinet and patternmaking. The machine tools have been selected with the object of showing manufacturing methods and operations.

Foundry.—The foundry contains 50 molding benches with the necessary molding tools, a cupola furnace, a brass furnace, a core oven, two pneumatic molding machines with cards, two hand molding machines, a pneumatic riddle, an electric riddle and a core machine, together with the patterns, sand, flasks, and other supplies and apparatus needed in bench and floor molding.

Machine Shop.—This room is a well-ordered machine shop, designed to do a large variety of work. It contains thirty-nine screw-cutting engine lathes of different makes, the sizes varying from twelve to eighteen inches swing, a thirty-two inch by eight foot planer, a twenty-two inch by five foot planer, three shapers, three universal milling machines, three plain milling machines, one ten by forty inch universal grinder, one eight by thirty inch plane grinder, one cutter grinder, two double tool grinders, one double disc grinder, one twist drill grinder, one casting grinder, one small tool grinder, one thirty inch drill press, two twenty inch drill presses, two sensitive drill presses, nine speed lathes for hand work and polishing, a belt lacing machine, a power hack saw, one flat turret lathe, one hand screw machine, one automatic screw machine, one horizontal boring mill, a traveling crane and a portable crane. An air compressor supplies compressed air for operating pneumatic hoists, pneumatic drills, and pneumatic chipping hammers. Benches and vises with sets of tools are provided for work in chipping, filing and fitting.

FORGE SHOP.—The forge shop is equipped with forty forges and complete sets of tools. The forges are fitted with underground blast and down draft systems. There is a 350-pound steam hammer, a fifty-five pound Justice spring hammer, three oil furnaces, a case-hardening furnace, a furnace for treating high-speed steel, and gas furnaces for hardening and tempering to which high temperature pyrometers are attached, a pneumatic bulldozer for bending and shaping, a small hand punch, large power shears for cutting stock, and grinding wheels for grinding tools. Benches are fitted with fifteen vises and sixty sets of tools for bench work in chipping and filing.

TOOL ROOMS.—Each wing has tool and store rooms in which are kept the shop tools and stores necessary to the shops in that wing.

DEMONSTRATION ROOMS.—Each work shop has a demonstration room adjacent to it. These demonstration rooms are fitted with seats and are used to give instruction and demonstration relative to the shopwork then in hand to groups of students. Movable machines with individual electric drive are used in them.

DRAWING ROOMS.—There are four drawing rooms, each equipped with drawing tables and other apparatus necessary to the accommodation of seventy-five students. These rooms are provided with lockers and accommodations for the students' comfort. Attached to them are a blue printing room provided with a blue printing machine and other apparatus necessary to the work, and also a dark room for photographic work.

FACILITIES FOR RECREATION

Public Lectures.—A convocation of all students and instructors is held at eleven o'clock Thursday mornings in Fowler Hall. At these meetings there is often music and an address by some guest of the University or a member of the faculty. In addition to these, there are frequently held under the auspices of the University, lectures on travel, literature and civics, readings of masterpieces of dramatic art, and musical entertainments of high order, all at a nominal cost. Lectures of more special interest are held during the winter months, at which prominent engineers or technical experts deliver addresses having a practical bearing on the professional work of the students.

Physical Education, including Athletics.—The University Department of Physical Education has supervision and administers instruction in physical exercise, sports, and games, in which all students not physically disqualified are required to participate in some degree. So far as possible physical exercise is expected to take the form of recreation in accordance with the taste and adaptability of the individual, as for instance, in playing athletic games, swimming, wrestling, skating, rowing, walking, etc.

The departmental staff includes competent leaders and instructors in all branches of physical sport. The department has ample and varied equipment including the large modern gymnasium and the athletic field of fifteen acres with all necessary provisions for class and intercollegiate games and contests. Participation in all branches of the department is free to all students except admission to intercollegiate games. One dollar per annum is charged for rental of a gymnasium locker.

The University is an original member of the Intercollegiate Conference of the Middle West under the rules of which all intercollegiate contests are played. Eligibility rules concerning playing intercollegiate games are enforced by the faculty committee on athletics.

Publications.—The student publications of the University include the *Purdue Exponent,* which is a valuable daily news sheet enabling the student to learn what is going on in all departments of the University; the *Purdue Agriculturist,* a monthly magazine, published by the Agricultural Society and devoted to the interest of farming and agricultural education; the *Engineering Review,* published annually by the Engineering Societies, and the *Debris,* the annual of the senior class.

LITERARY AND SCIENTIFIC SOCIETIES.—The students have five literary societies, the Carlyle, the Emersonian, and the Irving, for men, and the Philalethean and the Eurodelphian, for women. There are also three debating societies, the Purdue, the Jeffersonian, and the Forum. Connected with the various departments of technical instruction are the scientific societies; the Mechanical Engineering Society, the Civil Engineering Society, the Purdue Branch of the American Institute of Electrical Engineers, the Chemical Engineering Society, the Biological Society, the Pharmaceutical Society and the Agricultural Society.

YOUNG MEN'S CHRISTIAN ASSOCIATION.—This is a student organization under a General Secretary, directed by a State and National organization, active and helpful in the daily life of the student. It welcomes new students and helps to find rooms and boarding places for them, and maintains an employment bureau for the benefit of students who have to earn money to help pay their college expenses.

YOUNG WOMEN'S CHRISTIAN ASSOCIATION.—This performs for the women of the University, a function similar to the men's association above referred to.

CLASS ORGANIZATIONS.—Each of the four student classes of the University maintains a permanent organization, with regularly elected officers and a treasury, for the management of the class affairs. It is expected that students will become members of these organizations, paying the customary dues, wearing the class insignia, and participating in the interests and normal activities of the class.

OTHER SOCIETIES.—Among other student organizations having various objects may be mentioned the Purdue Band, which is subject to the orders of the Military department, the Purdue Orchestra, the Mandolin Club, the Glee Club, the Girls' Glee Club, the English Players, which presents at various times during the year plays indicative of the development of dramatic literature, and the Harlequin Club, which annually presents a dramatic entertainment; various State Clubs, the membership in each of which consists of the students in the University from a particular State, and the Cosmopolitan Club, affiliated with the International Corda Fratres, among whose members are the students from foreign countries.

ADMISSION TO THE UNIVERSITY

Those who have access to a high school are expected to complete four full years before applying for admission. The power and training given by a systematic plan of study four years in length, such as is furnished by the Commissioned High Schools of Indiana or other good schools, are essential to a student entering upon a college course, the difficulties of which tax the powers of the best prepared. Experience shows that one of the chief causes of failure in college classes is unsatisfactory preparation. Many applicants who have had good school opportunities are found to be deficient in their knowledge of preparatory mathematics, and particularly in their ability to use the English language. A thorough working knowledge of the preparatory subjects is absolutely necessary in order to begin and carry on the prescribed work of the University, and it is manifestly unfair to the applicant himself to admit him if he can not demonstrate that his preparation is sufficient to do this work successfully. On this account, applicants who do not satisfy all the stated entrance requirements will be received only in exceptional cases.

Time of Entrance

New students ordinarily enter the University at the beginning of the first semester (September 10 in 1919). It is impracticable for a student to enter later in the year (except to the Winter School of Agriculture) unless he has completed in another college the work done by the class previous to the date of his admission.

In 1919 the registration days will be Saturday, Monday, Tuesday and Wednesday, September 6, 8, 9 and 10. An extra fee of two dollars will be collected of students who register after the registration dates of either semester.

Application for Admission

All persons who desire to enter any department of the University should make application to the Registrar as early as possible before the opening of the first semester (September 10, 1919). Those who desire to be admitted by certificate should make application as soon as possible after their graduation from the High School. For all applicants the blank bound in the front of this volume will be sufficient. This should be filled out and filed with the Registrar as early as possible in advance of entrance.

Early attention to this matter will save the applicant much delay and embarrassment at the opening of the semester.

Requirements For Admission to the Freshman Class In Agriculture, Science, Pharmacy or Engineering

All applicants, in order to be admitted, must be at least sixteen years of age and must furnish certificates of good character.

The scholarship requirement for admission to all schools is thorough preparation in fifteen units of High School work. A unit is the amount of work represented by five recitations a week for a school year of not less than eight months; i. e., not less than 160 recitations on prepared work or equivalent laboratory or other practice.

Of these fifteen units, the following are prescribed for all students:

English	3	units
Foreign Language	2	units
Algebra	1½	units
Plane Geometry	1	unit
*Science	1	unit
History	1	unit
For students entering work in Engineering, Solid Geometry	½	unit

To make up the total of fifteen units the University will accept additional credits in English, Foreign Language, Mathematics, Science, Social Science, History, Shop Work, Manual Training, Drawing, Domestic Science, and Agriculture.

Admission by Certificate

Admission by certificate is granted only to graduates of Commissioned High Schools of Indiana and of schools of like standing in other States at the opening of the first semester. Such graduates will be admitted without examination on credentials certifying to their age, character, scholarship, and graduation. This certificate must give in detail, concerning each subject which the applicant has studied in the school, the length of time in weeks, the number of recitations per week, and the grade or mark indicating his proficiency. A blank for this certificate will be supplied to the school by the Registrar. A school diploma is not acceptable in place of the certificate.

A Commissioned High School is one which under the rules of the Indiana State Board of Education attains certain prescribed standards of equipment, teaching force, and efficiency, and administers in a satisfactory manner a four-year plan of study, in advance of eighth-grade or grammar-school studies, and requires for graduation sixteen units of work.

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* The science of Physics is required for admission to the four year plan of study in Agriculture, Pharmacy and Science.

Certified High Schools of Indiana are not recognized by the State Board of Education as entitling their graduates to admission to college on certificate. All such applicants are required to take the entrance examinations as directed below.

School certificates will not be accepted in place of examination in any prescribed subject from an applicant who is not a graduate of a Commissioned High School.

Admission by Examination

Applicants who are not graduates of Commissioned High Schools are required to take the entrance examinations in the prescribed subjects. In the case of candidates admitted to the University by these examinations, the elective units will be accepted so far as may be from certificates of school work. Deficiencies in such electives must be covered also by entrance examination. Application for the entrance examinations must be made to the Registrar on the blank in the front of this Catalogue.

Candidates will not be admitted to examinations unless they first present certificates indicating a satisfactory amount of high school work already completed.

Entrance examinations are held at the University without charge in September of each year. Applicants are advised, however, to examine in June through the College Entrance Examination Board. They may in this way take part of the subjects in June, completing the remaining requirements by examining at the University in September; they may be re-examined in September in subjects not passed in June.

Schedule of June Examinations, 1919

These examinations are administered by the College Entrance Examination Board in the principal cities of the United States and Canada, June 16 to 21, 1919. Applications for the examinations must be made on or before Monday, May 19, 1919, and addressed to the Secretary of the College Entrance Examination Board, 431 West 117th Street, New York, N. Y. The examination fee of $6.00 should be remitted by postal order, express order, or draft on New York, payable to the order of the College Entrance Examination Board.

The *prescribed* units required by Purdue University will be covered by the subjects in the list issued by the Board as follows:

English 1 and 2; French A, or German A, or Latin 1, 2 and 3, Mathematics A and C; (for engineering candidates, also Mathematics D), Physics (or, for engineering candidates, Botany, or Chemistry, or Zoology); History A, or B, or C, or D.

Schedule of September Examinations, 1919

These examinations are held at Purdue University.

Friday, September 5

8 to 10 A. M.	Foreign Language	3 to 4 P. M.	Plane Geometry, Trigonometry
10 to 11 A. M.	History		
11 to 12 A. M.	Science	4 to 5 P. M.	Solid Geometry, Commercial Arithmetic
1 to 3 P. M.	Algebra		

Saturday, September 6

8 to 11 A. M.	English

It is important that applicants who take entrance examinations should thoroughly review their work in preparation for them.

Admission to Advanced Standing

The following requirements are established for admission to advanced standing:

1. The submission of a letter of honorable dismissal from the institution last attended.
2. A certificate of preparatory work covering the entrance requirements listed on page 51
3. An official transcript of all the work done in institutions previously attended.
4. A marked Catalogue showing the courses referred to in the transcript.
5. A letter from the instructor regarding work done in shops for practical mechanics.

Advanced standing will be determined on a basis of the credits allowed over courses of Purdue University for work of equivalent character and amount successfully completed elsewhere. Personal consultation with the applicant will be required where the credentials are not sufficiently definite.

Credits for work done in secondary schools will be given only on the basis of an examination for advanced standing. Such credit will not count toward graduation if the underlying work has been used to meet the entrance requirements of the University.

Admission of Special Students

Application for admission as a special student should be made after consultation with the proper Dean, should be addressed to the Committee on Special Students, and should state (1) the applicant's age; (2) his school preparation; (3) his experience; (4) a plan of study, enumerating the subjects he desires to take; (5) the purpose or end expected to be accomplished by his study. Special students may not be admitted to the Schools of Engineering.

EXPENSES

Purdue University is a State institution, therefore the Trustees grant free tuition to all students entering from the State of Indiana. All others are required to pay an annual tuition fee of twenty-five dollars.

Following is a classified statement of all necessary expenditures of students so far as the requirements of the University are concerned:

1. Fixed University Fees.

First Semester fees are payable on registration in September. Second Semester fees are payable the last week in January. These fees are as follows:

	First Semester	Second Semester
Entrance fee, $5.00, payable annually on matriculation	$ 5.00	
Tuition fee for students from without the state, $25.00 per annum	12.50	$12.50
Incidental fee, $10.00 per annum	5.00	5.00
Laboratory and library fees, $20.00 per annum	10.00	10.00
Medical and infirmary fee, $1.00 per annum	1.00	
Diploma fee, $5.00, payable on the Saturday preceding graduation.		

Payment must be made in cash or by bank draft, express order or postoffice order. No personal checks will be accepted. **By direction of the Board of Trustees, no fees are returnable after registration.**

2. University Deposits.

To cover breakage of apparatus used in laboratory courses, students are required to deposit in advance certain sums as indicated below. Any portion of this deposit not consumed is refunded at the end of the year.

Laboratory courses in **chemistry**, per annum	$ 5.00

When more than one such course is taken, $5.00 per semester.

Laboratory courses in **pharmacy**, per annum	10.00
Laboratory courses in **home economics**, per annum	2.00
Laboratory courses in **agriculture**, per annum	5.00

It is expected that the War Department of the U. S. Government will supply uniforms without cost, for use in military drill. In such case, male students entering the freshman or sophomore classes without credit for military instruction will be required to make a deposit to cover damage to uniform and equipment.

3. Personal Expenses (Estimated).

Table board, per week	$ 4.50 up	
Room rent, heat and light, 2 in a room, each, per month	4.50 to	$ 8.00
Washing, per week		.50
Books, instruments and supplies, per annum	15.00 to	30.00

Second-hand books are often obtainable at reduced prices.

County Appointments.—The law of Indiana provides for the appointment of not to exceed two (2) students from each county in the State, who upon entering Purdue University, shall be exempt from the payment of certain entrance and incidental fees, amounting to $15.00 per annum, but not from library and laboratory fees. Students seeking such appointments will carefully note the following:

1. These appointments are made annually by the Commissioners of the various counties, to whom application therefor should be made. The appointee must reside in the county from which the appointment is made. The appointment expires June 30th, but may be renewed.

2. The certificate of appointment should be filed with the University as soon as made, as the appointment cannot be recognized until this is done. It becomes effective at the beginning of the semester next after it is filed.

3. This appointment does not apply to, nor relieve the applicant from, the requirements as to scholarship demanded for entrance to the University classes.

Prospective students who cannot secure such appointments because the quota from the county is already filled, should not defer entering the University on that account, since the saving of money is not sufficient to offset the loss of time caused by waiting one or more years.

Special Appointments from Warren County.—Under the terms of the will of the late William C. Smith, of Warren County, the University receives each year, upon nomination of the Commissioners of Warren County, ten students who are exempt from tuition, entrance and incidental fees. Only residents of Warren County are eligible to these appointments.

Special Appointments from Lawrence County.—Under the terms of a gift from Moses Fell Dunn of Lawrence County, the University receives each year two students upon nomination of the Superintendents of the Schools of Bedford and Mitchell, upon the same terms as the regular county appointments above mentioned. Only residents of Lawrence County are eligible to these appointments.

Loan Scholarships.—The University administers a number of loan scholarships available to needy students. These consist of the Volney Perkins Scholarships, established by Mr. and Mrs. S. E. Perkins, of Indianapolis, as a memorial of their son, available to students in the School of Mechanical Engineering; the Harlequin Club Scholarships, established by the student dramatic club of that name; the scholarships established by the Classes of 1903, 1913 and 1915; the Rosenbaum Scholarships, limited to the School of Agriculture; the Gates Scholarship, established by the Misses Florence and Louise Gates, as a memorial for their brother; the Seward Scholarship; the Frank S. Porter Scholarship; the Indiana Federated Clubs Educational Loan Fund for women students, and the Indiana Corn Growers' Scholarship.

These scholarships are awarded in the form of loans of $100, preferably to members of the Senior class in good standing, to be repaid one year after graduation. Application should be made before November 1 to the President of the University. The awards will be made by a committee of the faculty before the holidays. From fifteen to twenty scholarships are available annually.

The Alumni Association also administers loan scholarships under similar conditions, for which application should be made to the President of the Alumni Association.

In 1903 the firm of Joseph T. Ryerson & Son, of Chicago, established scholarships to be administered under the direction of the American Railway Master Mechanics' Association, in sustaining students at Purdue University. The scholarships yield an annual stipend of $300 each. Full information in this regard may be obtained by application to Secretary V. R. Hawthorne, 746 Transportation Building, Chicago, Illinois.

The firm of E. I. DuPont de Nemours & Co. have established the DuPont Scholarship to the value of $350 to be awarded by the University annually to a Senior or Graduate Student in Chemistry or Chemical Engineering.

Women's Dormitory.—A limited number of rooms in this building are reserved for appointed students, but rooms not thus taken may be assigned to other worthy women students, with the approval of the Dean of Women. Such non-appointed students are required to pay fifty cents per week for these rooms.

Women students who cannot be accommodated in the dormitory will be assigned to rooms, at the approval of the Dean of Women, in houses under the supervision of the Faculty. They will not be permitted to occupy rooms except under the above conditions, and should apply to the Dean of Women for assignment to rooms at the beginning of the year.

Self-Support.—Students who hope to contribute to the payment of their expenses by outside work during term time should not expect to earn much in this way, since the regular class work will require most of their time and effort. No one should come to the University depending solely upon local employment for support unless some definite arrangement has been previously made.

A number of students each year are able to earn money enough to pay a part or all of their expenses, but they depend for the most part on employment during the summer vacation. The best opportunities open to students about the University and city are likely to be taken by those who have been in the University during a previous year, so that students will be able to find many more opportunities to earn money after they have been in residence for a year than when they first come. Usually these places can not be found for a student in advance of his coming, and it can not be emphasized too strongly that much depends upon his willingness and his determination to succeed, as well as upon his skill, his versatility, and his initiative.

The policy of the University is to reduce all necessary expenses to the minimum, and in this way to aid those whose means are limited. In this respect the conditions are favorable, but persons are advised not to enter the University without definite resources sufficient to meet their expenses for a time at least.

Private Board.—Students can obtain board and rooms in private families in West LaFayette at reasonable rates, but will not be permitted to live at places not approved by the Faculty. The personal expenses of students vary between wide limits, depending largely on the style of living to which they have been accustomed and the amount of money furnished them. Many students, obliged to pay their own expenses, acquire such habits of thrift and economy as to enable them to get through the college year on a comparatively small amount. Table board in clubs, boarding houses, and private families ranges from $20 up per month; good rooms, furnished, heated, lighted, and cared for, can be had from $9 to $12 per month for single rooms, and from $9 to $16 for double rooms; soft washing costs 50 cents per week—steam laundry work commands the usual prices. Books and drawing instruments may be estimated at $15 to $30 per year. Thirty-five dollars a month is a fair estimate of the necessary expenses of a student, not including traveling expense, clothing, or University fees. Many students get along on a smaller amount because they are obliged to do so; those who have a much larger allowance are in danger of neglecting their studies and making poor use of their time.

Health.—A Medical and Infirmary Service provides opportunity for each student to consult with a competent medical adviser and, when necessary, to enter a hospital at LaFayette for a limited time, free of charge. It also provides medicine as dispensed by the University School of Pharmacy upon prescription of the University Physician. In accidents or emergencies occurring on the campus in connection with University duties, first aid is administered by the University physician without charge. For this service, each resident student is required to pay annually a medical and infirmary fee of $1.00.

Medical attendance at the homes of students or at the hospitals; treatment of injuries received in physical exercises and contests; and treatment of certain specific and chronic diseases are not included in this service.

DEGREES CONFERRED BY THE UNIVERSITY

Purdue University grants the following degrees:

For completion of the four-year undergraduate plans of study, the degrees of Bachelor of Science, or Bachelor of Science in Agriculture, Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, or Pharmacy.

For completion of the two-year undergraduate plan of study in Pharmacy, the degree of Pharmaceutical Chemist.

For completion of graduate plans of study, beginning with the academic year 1917-1918, the degrees of Master of Science, or Master of Science in Agriculture, Chemical Engineering, Civil Engineering, Electrical Engineering, or Mechanical Engineering; also the degrees of Chemical Engineer, Civil Engineer, Electrical Engineer, and Mechanical Engineer.

REQUIREMENTS FOR BACCALAUREATE DEGREES

A baccalaureate degree from Purdue University involves the satisfaction of the following requirements:

1. Completion of the plan of study in the school from which graduation is sought. In the case of students admitted to advanced standing not less than one year's resident study will be accepted for this purpose.

2. The completion of a satisfactory thesis* or its equivalent by all candidates from the schools of Agriculture, Science and Engineering. The thesis assignment must be filed with the Registrar on or before May first of the second semester of the Senior year.

3. Payment of the diploma fee of five dollars to the Bursar on or before the Saturday preceding Commencement.

4. Attendance upon the Baccalaureate Address and upon Commencement.

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* The finished thesis in typewritten form, on regulation unruled, white, bond paper, 8 by 10½ inches in size, with a margin of 1½ inches on the left side, unbound, must be deposited with the Registrar on or before the Saturday preceding Commencement.

REQUIREMENTS FOR ADVANCED DEGREES

A Bachelor of Science of Purdue University is eligible to candidacy for the advanced degree corresponding to his baccalaureate degree. He may become a candidate for an advanced degree other than the one to which he is eligible as above, by completing the undergraduate work, thesis excepted, required for the corresponding baccalaureate degree. A Bachelor of Science in Engineering, not engaged in engineering work, may upon approval of the Committee on Graduate Students and of the head of the School involved become a candidate for the degree of Master of Science under the same conditions as apply to graduates from the School of Science.

RESIDENT GRADUATE STUDENTS

Candidates who are not graduates of Purdue University must apply to the Committee on Graduate Students to learn the conditions under which they will be admitted to candidacy for an advanced degree. A blank for this purpose may be obtained by applying to the Registrar.

An instructor or Assistant in the University or Experiment Station, a graduate of Purdue or of another institution of equal standing, is eligible to register as a resident graduate student and become a candidate for a Master's degree.

Graduates of Purdue University who desire to do graduate work, not as candidates for advanced degrees, may register on application to the Registrar and be assigned, with the consent of the Head of the Department concerned, to any regular University work. Graduate students may not, under this provision, be assigned to graduate work to be counted toward an Advanced Degree.

Graduates of institutions other than technical schools of recognized collegiate grade, who desire to do work in the school of engineering, are advised to enter one of the regular undergraduate plans of study.

A senior student with credits equivalent to at least one-half of the senior work may be assigned graduate work and may receive credit for the same toward an advanced degree in a subsequent year, provided that application for such credit be made at the time the work is assigned.

Degrees

The degree of Master of Science, Master of Science in Agriculture, Master of Science in Mechanical Engineering, Master of Science in Civil Engineering, Master of Science in Electrical Engineering, or Master of Science in Chemical Engineering will be granted after not less than one year's resident graduate work (two years in the case of an instructor or assistant) which must include the completion of one major and two minors approved by the Committee on Graduate Students, and the preparation of an acceptable thesis. A major requires the equivalent of fifteen semester hours and a minor the equivalent of seven and one-half semester hours. A semester hour is one class hour or two laboratory hours per week for one semester.

Candidates for the degree of MASTER OF SCIENCE IN AGRICULTURE must select a major from the graduate courses offered in Agronomy, Animal Husbandry, Dairy Husbandry and Horticulture, and two minors, one of which must be in Biology, Chemistry, Economics, Education, English, French, German or History. Such candidates must have a reading knowledge of French or German.

Candidates for the degree of MASTER OF SCIENCE must select a major from the graduate courses offered in Biology, Chemistry, Economics, Education, Home Economics, Mathematics, and Physics, and two minors, one of which must be in Art, English, French, German, History, or any one of the subjects enumerated as available for majors, except that one in which the major is chosen. Such candidates must have a reading knowledge of French or German.

Candidates for the degree of MASTER OF SCIENCE IN CIVIL ENGINEERING must select a major from the graduate courses offered in Hydraulic, Railway-Civil, Sanitary, or Structural Engineering, and two minors, one of which must be in Applied Mechanics, Biology, Chemistry, Economics, Education, Mathematics, Modern Language or Physics.

Candidates for the degree of MASTER OF SCIENCE IN ELECTRICAL ENGINEERING must select a major from the graduate courses offered in Electrical or Telephone Engineering, and two minors, one of which must be in Applied Mechanics, Biology, Chemistry, Economics, Education, Mathematics, Modern Language or Physics.

Candidates for the degree of MASTER OF SCIENCE IN MECHANICAL ENGINEERING must select a major from Gas, Heating and Ventilating, Railway-Mechanical, or Steam Engineering, and two minors, one of which must be in Applied Mechanics, Biology, Chemistry, Economics, Education, Mathematics, Modern Language or Physics.

Candidates for the degree of MASTER OF SCIENCE IN CHEMICAL ENGINEERING must select a major from the graduate courses offered in Chemistry, Physics, Civil Engineering, Electrical Engineering, or Mechanical Engineering, and two minors, one of which must be in Applied Mechanics, Biology, Chemistry, Economics, Education, Mathematics, Modern Language or Physics, *provided* that either the major or one minor shall be in Chemistry.

Procedure

The procedure for resident candidates is as follows: (1) Prepare a plan of study and practice after consultation with the head of the department which gives the major. (2) Register in the Registrar's office. This must be completed by October 31 in order to receive credit for a full year's work. Graduate students are required to subscribe to the same rules and regulations as undergraduates. (3) Pay fees to the Bursar. Graduates of Purdue University are exempt from fees. Graduates of other institutions pay for each year of residence a fee of $36.00, and, if not residents of Indiana, a tuition fee of $25.00 in addition. All graduate students are required, also, to make such deposits to cover breakage as the regulations of the various laboratories may require. (4) Accept the assignment of a thesis subject. For this purpose the head of the department which administers the thesis will furnish a blank which must be filled out, signed, and filed in the Registrar's office by October 31 preceding the Commencement at which the degree is to be conferred. (5) Submit a first draft of the thesis to the professor in charge not later than April 15, and the completed thesis in its final form by May 1. (6) Pass an examination covering the major and minors and the investigations underlying the thesis. (7) Deposit the thesis, approved by the professor in charge, in the Registrar's office and pay the diploma fee of $5.00 to the Bursar before 5 p. m. of the Saturday next preceding Commencement.

NON-RESIDENT GRADUATE STUDENTS

Engineering graduates of Purdue University are eligible to register as non-resident graduate students. This privilege is not extended to graduates of other institutions.

Non-resident students pay no tuition, but successful candidates are required to pay, at least three days before the degree is conferred, a diploma fee of $5.00.

Degrees

The degree of MASTER OF SCIENCE (with or without designation of school) will not be conferred upon non-resident graduate students after June 30, 1919.

The degree of MECHANICAL ENGINEER, or CIVIL ENGINEER, ELECTRICAL ENGINEER, or CHEMICAL ENGINEER will be granted after not less than four years of professional experience (which has been partly if not wholly in the supervision, direction or design of engineering work and subsequent to the corresponding bachelor's degree) and the preparation of an acceptable thesis.

Engineering graduates of Purdue University who have taken the Master's degree in residence will be credited two years' professional experience on subsequent registration for the corresponding engineering degree.

The procedure for non-resident candidates for engineering degrees is as follows: (1) Prepare an outline for a thesis after consultation with the head of the department concerned. (2) Accept the assignment of a thesis subject. For this purpose the head of the department will furnish a blank which must be filled out, signed, and returned. As soon as the thesis subject has been approved by the Committee on Graduate Students the candidate will be registered in the Registrar's office. This registration must be completed not later than October 31 next preceding the Commencement at which the degree is to be conferred, but all candidates are urged to register at least one year earlier. (3) Submit the first draft of the thesis to the professor in charge not later than April 1, and the completed thesis in its final form by May 1. (4) Pass an examination at the University covering the candidate's professional practice and the investigations underlying the thesis. (5) Deposit the thesis, approved by the professor in charge, in the Registrar's office, and pay the diploma fee of $5.00 to the Bursar by 5 p. m. of the Saturday next preceding Commencement.

UNDERGRADUATE PLANS OF STUDY

In the Schools of Agriculture, Engineering, Pharmacy and Science.

The Faculty has recently made radical changes in the curricula of the University, which went into effect with the opening of the college year of 1917-18. In brief, these are (1) to reduce the daily class hours from seven to six; namely, from 8 to 11 a. m. and from 1 to 4 p. m.; (2) to set aside the hour from 11 to 12 o'clock each day for military and physical instruction; (3) to reduce the number of subjects in the curriculum, of hours spent in class rooms, and of semester hours* required for graduation.

By these changes it is sought to secure to the student more time for self direction, reading, etc., and also to intensify the work during class hours, and at the same time to simplify the program of studies.

In all of this there is no intention of lowering the standards of scholarship heretofore required of students of Purdue University. The work is quite as exacting as ever and requires greater self control and self direction on the part of the student. Of equal importance is it that there will now be better opportunity for recreation and more free time.

It is believed that the change will be to the great advantage of all earnest students. The Faculty, in bringing it about, have confidence that the change will favorably react upon the quality of University work and the capacity and strength of its graduates.

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* The Semester Hour system has been adopted to replace the former "Point" system as a relative measure of courses. One lecture or recitation hour per week for one semester equals one semester hour. Three laboratory hours (if self-contained; otherwise two laboratory hours) are counted as equivalent to one semester hour.

AGRICULTURE

The School of Agriculture offers a regular four-year plan of study, a Winter School of eight weeks, and a Farmers' Short Course of one week, and admits a limited number of special students in Agriculture.

The four-year plan of study offers opportunity for a broad education in the Science and Art of Agriculture. The technical Agriculture may be chosen from a large number of courses of instruction in Agronomy, Animal Husbandry, Dairy Husbandry, Horticulture, Entomology, and Poultry. The remaining portion is made up from the various sciences (Biology, Chemistry, Physics) fundamental to Agricultural work and such cultural subjects as Mathematics, Literature, History, Economics, Language, etc.

For the first two years the courses are prescribed. Certain courses are required of all students in the Junior and Senior years. Others are elective to be chosen by the student under such regulations as to insure a broad, well-rounded training. By such a choice the student may fit himself for general or special farming or for teaching and work in Experiment Stations or for other lines of highly specialized Agricultural work in the fields of Agronomy, Animal Husbandry, Dairy Husbandry, Horticulture, Poultry, etc.

Juniors and Seniors in the School of Agriculture are required to attend trips of inspection during the early spring season. Each trip occupies one to three days.

Special Students in Agriculture

As a general rule persons of student age will be expected to enter the regular four-year plan of study or the Winter School of Agriculture.

Students will not be permitted to do special work in agriculture except in the case of persons whose age, experience, purpose and previous training indicate to the Faculty the wisdom of permitting them to pursue special studies. Special students are not candidates for a degree and usually cannot obtain more than two years of profitable work.

Applicants who desire to become special students must be at least 21 years of age and have had sufficient preparation satisfactorily to carry the work assigned to the regular classes. Such applicants will be considered on their individual merits by a special committee of the faculty. See page 53.

Winter School

This work is designed to meet the needs of those who from lack of time or preparation may be unable to enter the regular four-year plan of study. The work consists of lectures and laboratory exercises arranged to meet the needs of farmers and home makers. The prime object of this work is to help young men and women to produce better corn and live stock, better milk and butter, better fruit, better poultry, and to make better homes, and at the same time to secure a greater profit from the time, energy and money expended. It teaches the "How" and "Why" of Farming and Home Making.

Four plans of study are offered:

GENERAL AGRICULTURE, ANIMAL HUSBANDRY
DAIRY HUSBANDRY, and HOME ECONOMICS

A special circular in regard to these may be obtained by application to the Registrar.

The Farmers' Short Course

This work is designed to meet the needs of busy farmers. Systematic instruction in practical agriculture is given at a time when farmers can take advantage of it. A definite plan of study is outlined to cover a period of one week in January of each year. Lectures, laboratory exercises and demonstrations in soils, crops, live stock, dairying, horticulture, poultry, and home economics are given. Special announcement and schedule may be obtained on application to the Dean of the School of Agriculture.

FOUR-YEAR PLAN OF STUDY

The figures in parenthesis preceding a course indicate the number of semester hours assigned to it. The semester hour is defined on page 63.

FRESHMAN YEAR.

First Semester.			Second Semester.		
(2⅓)	*Agronomy 21	p. 88	(3)	*Agronomy 11	p. 87
(3)	*Animal Husbandry 4	p. 88	(3)	*Animal Husbandry 7	p. 88
(3)	Biology 1	p. 91	(3)	Biology 2	p. 91
(3)	Chemistry 1 or 1a	p. 96	(3)	Chemistry 2 or 2a	p. 96
(3)	English 1	p. 110	(3)	English 2	p. 110
(3)	*Entomology 1	p. 111	(3)	Mathematics 12	p. 121
(3)	Mathematics 11	p. 121	(1)	Military Training 2	p. 129
(1)	Military Training 1	p. 129	(3)	*Poultry 1	p. 138
(21⅓)			(22)		

† SOPHOMORE YEAR.

First Semester.			Second Semester.		
(2⅔)	Agronomy 1	p. 86	(2⅔)	*Agronomy 2	p. 86
(2⅓)	*Agronomy 16	p. 87	(2⅔)	Agronomy 22	p. 88
(4)	Biology 18	p. 93	(3⅔)	*Animal Husbandry 2	p. 88
(3)	Chemistry 29	p. 98	(4)	Biology 19	p. 93
(3)	*Dairy Husbandry 1	p. 102	(3)	Chemistry 30	p. 98
(3)	English 5	p. 110	(3)	English 6	p. 110
(2⅔)	Horticulture 11	p. 117	(2⅔)	Horticulture 12	p. 117
(1)	Military Training 3	p. 129	(1)	Military Training 4	p. 129
(21⅔)			(22⅔)		

NOTE.—Students not offering Physics as the entrance science will be required to take Physics 1a and 2a in addition to regular Sophomore work.

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* A part of the class will take Agronomy 11 and Animal Husbandry 7 in the first semester and Agronomy 21 and Animal Husbandry 4 in the second semester. A similar arrangement is made for Poultry 1 and Entomology 1, and also for Agronomy 2, 16, Animal Husbandry 2 and Dairy Husbandry 1 in the Sophomore year.

† Students who have shown ability in Chemistry and intend to specialize in Agricultural Chemistry may, upon approval of the Chemistry Department and the Dean of Agriculture, substitute Chemistry 3 and 4 for Chemistry 29, 30, Agronomy 16 and Animal Husbandry 2. It will not be practicable to make any subsequent change from this option.

JUNIOR YEAR.

REQUIRED

First Semester.			Second Semester.		
(3)	Animal Husbandry 8	p. 89	(3)	Animal Husbandry 9	p. 89
(3)	‡History 2	p. 114	(3)	‡History 3	p. 114
(3)	§Military Training 5	p. 129	(3)	§Military Training 6	p. 129
(6)			(6)		

OPTIONS

Choice must be made of one of the following groups: the corresponding group must be chosen in the Senior Year. The student is expected to prepare himself in this way for his major employment subsequent to graduation.

General Agriculture.

(3⅓)	Agronomy 4	p. 86	(3⅓)	Agronomy 3	p. 86
(3)	Agronomy 7	p. 87	(3)	Agronomy 8	p. 87
(3⅓)	*Animal Husbandry 12	p. 89	(3⅓)	*Animal Husbandry 13	p. 89
(4)	Biology 19a	p. 93	(4)	Biology 14	p. 93
(3)	*Entomology 2	p. 111	(3)	*Entomology 3 or 3a	p. 112

Agricultural Chemistry.

(3⅓)	Agronomy 4	p. 86	(3⅓)	Agronomy 3	p. 86
(3)	Agronomy 7	p. 87	(3)	Agronomy 8	p. 87
(3)	Chemistry 5	p. 97	(3)	Chemistry 6	p. 97
(3)	†German 41	p. 130	(3)	†German 42	p. 130

‡ Agricultural Education.

(3⅓)	Agronomy 4	p. 86	(3⅓)	Agronomy 3	p. 86
(3)	Agronomy 7	p. 87	(4)	Biology 14	p. 93
(4)	Biology 19a	p. 93	(3)	Education 4	p. 106
(3)	Education 3	p. 106	(3)	Entomology 6	p. 112

Agronomy.

(3⅓)	Agronomy 4	p. 86	(3⅓)	Agronomy 3	p. 86
(3)	Agronomy 7	p. 87	(3)	Agronomy 8	p. 87
(4)	Biology 19a	p. 93	(4)	Biology 14	p. 93
(3)	†German 41	p. 130	(3)	†German 42	p. 130

Animal Husbandry.

(3)	Agronomy 7	p. 87	(3)	Agronomy 8	p. 87
(3⅓)	Animal Husbandry 12	p. 89	(3⅓)	Animal Husbandry 13	p. 89
(3⅓)	Animal Husbandry 22	p. 90	(3⅓)	Animal Husbandry 23	p. 90
(4)	Biology 36	p. 94	(4)	Biology 37 or 38	p. 94

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* One course must be chosen in each semester.

† Work in German will not be counted toward graduation unless successfully continued through two years.

‡ Education 1, 2 is required in place of History 2, 3 for those specializing in Agricultural Education.

§ For students entering the Reserve Officers' Training Corps.

Dairy Husbandry.

(3)	Agronomy 7	p. 87	(3)	Agronomy 8	p. 87
(3⅓)	Animal Husbandry 12	p. 89	(3⅓)	Animal Husbandry 13	p. 89
(4)	Biology 61	p. 95	(2⅔)	Biology 8	p. 92
(3⅔)	Dairy Husbandry 6	p. 103	(2⅔)	Dairy Husbandry 7	p. 103

For specialization in Dairy Manufacturing instead of Milk Production, Dairy Husbandry 10, 5 should be taken instead of 6, 7; and Dairy Husbandry 3, 2 should be taken instead of Animal Husbandry 12, 13.

Horticulture.

(4)	Biology 10	p. 92	(4)	Biology 54	p. 95
(3)	Entomology 2	p. 111	(3)	Entomology 3a	p. 112
(4)	Horticulture 13	p. 118	(4)	Horticulture 14	p. 118
(4)	Horticulture 19	p. 118	(3)	Horticulture 21	p. 118

For specialization in Floriculture and Vegetable Gardening instead of Pomology, Horticulture 25 and 22 should be taken instead of 13 and 21.

Poultry.

(3⅓)	*Agronomy 4	p. 86	(3⅓)	*Agronomy 3	p. 86
(3)	Agronomy 7	p. 87	(3)	Agronomy 8	p. 87
(3⅓)	*Animal Husbandry 12	p. 89	(3⅓)	*Animal Husbandry 13	p. 89
(4)	Biology 36	p. 94	(4)	Biology 37 or 38	p. 94
(4⅓)	Poultry 5	p. 139	(4⅓)	Poultry 6	p. 139

SENIOR YEAR.

REQUIRED

First Semester.			Second Semester.		
(3)	Agronomy 19	p. 88	(3)	Agronomy 20	p. 88
(3)	Economics 11	p. 104	(3)	Economics 12	p. 104
(3)	†Military Training 7	p. 129	(3)	†Military Training 8	p. 129
(2)	Thesis	p. 58	(2)	Thesis	p. 58
(11)			(11)		

OPTIONS

Choice must be made of one of the following groups:

General Agriculture.

(3)	Agronomy 17	p. 87	(3)	Agronomy 18	p. 87
(2⅔)	*Animal Husbandry 14	p. 89	(2⅔)	*Animal Husbandry 15	p. 89
(3)	Animal Husbandry 21	p. 90	(4)	Biology 17a	p. 93
(4)	Biology 17	p. 93	(2⅔)	Dairy Husbandry 8	p. 103
(3)	*English	p. 111	(3)	*English	p. 111
(3)	*Horticulture 29	p. 119	(3⅓)	*Poultry 2	p. 138

Agricultural Chemistry.

(2⅔)	Agronomy 5	p. 86	(2⅔)	Agronomy 6	p. 87
(5)	Chemistry 7	p. 97	(5)	Chemistry 8	p. 97
(3⅓)	Chemistry 19	p. 98	(3⅓)	Chemistry 20	p. 98
(3)	German 43	p. 130	(3)	German 44	p. 130

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* One course must be chosen in each semester.

† For students entering the Reserve Officers' Training Corps.

Agricultural Education.

(3)	Animal Husbandry 21	p. 90	(3⅓)	*Animal Husbandry 13	p. 89
(4)	Biology 17	p. 93	(4)	Biology 17a	p. 93
(2)	Education 9	p. 106	(3)	Dairy Husbandry 8	p. 103
(4)	Education 11	p. 106	(2)	Education 10	p. 106
(3)	Horticulture 29	p. 119	(4)	Education 12	p. 106
			(3⅓)	*Poultry 2	p. 138

Agronomy.

(2⅔)	Agronomy 5	p. 86	(2⅔)	Agronomy 6	p. 87
(3⅓)	Biology 17	p. 93	(3⅓)	Biology 17a	p. 93
(4)	Chemistry 19	p. 98	(4)	Chemistry 20	p. 98
(3)	German 43	p. 130	(3)	German 44	p. 130

Animal Husbandry.

(2⅔)	Animal Husbandry 10	p. 89	(2⅔)	Animal Husbandry 6	p. 88
(2⅔)	Animal Husbandry 14	p. 89	(2⅔)	Animal Husbandry 15	p. 89
(4)	Biology 30	p. 93	(4)	Biology 31	p. 93
(3)	‡Elective		(3)	‡Elective	

Dairy Husbandry.

(2⅔)	Animal Husbandry 14	p. 89	(2⅔)	Animal Husbandry 15	p. 89
(3⅓)	Dairy Husbandry 4	p. 103	(2⅔)	Dairy Husbandry 9	p. 104
(4)	Dairy Husbandry 12	p. 104	(3⅓)	Dairy Husbandry 13	p. 104
(3)	†English 14	p. 111	(3)	†English 15	p. 111

For specialization in Dairy Manufacturing instead of Milk Production, Dairy Husbandry 11, 14 should be taken instead of Animal Husbandry 14, 15.

Horticulture.

(4)	Biology 17	p. 93	(4)	Forestry 2	p. 112
(3)	English	p. 111	(3)	English	p. 111
(3)	Horticulture 13a	p. 118	(4)	Horticulture 18	p. 118
(3)	Horticulture 16	p. 118	(3)	Horticulture 20	p. 118

For specializing in Floriculture and Vegetable Gardening instead of Pomology, Horticulture 24 should be taken instead of 13a, and 23 may be taken instead of 18.

Poultry.

(4)	Biology 30	p. 93	(4)	Biology 31	p. 93
(3)	*Education 1	p. 105	(2⅔)	*Dairy Husbandry 8	p. 103
(3)	*English	p. 111	(3)	*Education 2	p. 105
(3)	*Horticulture 29	p. 119	(3)	*English	p. 111
(2)	Poultry 7	p. 139	(2)	Poultry 8	p. 139
(4)	Poultry 9	p. 139	(4)	Poultry 10	p. 139

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* One course must be chosen in each semester.

† Students having acceptable credits for one year of college German may substitute second year German for English 14, 15.

‡ Electives may be selected in Economics, Education or English.

CHEMICAL ENGINEERING

The plan of study in this school is designed for those who wish to prepare themselves for scientific or executive positions in some of the lines of chemical or allied industries, where a knowledge of the principles of mechanical and electrical engineering is required, together with a thorough grounding in Chemistry and Physics.

The training during the first two years of the course is in general along the lines followed in the other schools of engineering except that chemistry is taken up in the Freshman year and continued throughout the four years. Engineering studies are carried throughout also, but particular stress is laid on chemical training along both theoretical and practical lines in the Junior and Senior years. During the Junior and Senior years inspection trips are made to points of interest in connection with various lines of chemical industry.

Graduates of this school may expect to begin work in the chemical laboratory or draughting room, and later to enter the works as chemical engineers or superintendents. The broad character of the course affords excellent preparation for those intending to enter business or industrial lines.

The figures in parenthesis preceding a course indicate the number of semester hours assigned to it. The semester hour is defined on page 63.

FRESHMAN YEAR.

	First Semester.			Second Semester.	
(3⅓)	Chemistry 1a	p. 97	(3⅓)	Chemistry 2a	p. 97
(3)	English 1	p. 110	(3)	English 2	p. 110
(3)	German 51 or 51a	p. 131	(3)	German 52 or 52a	p. 131
(6)	Mathematics 1	p. 121	(6)	Mathematics 2	p. 121
(2)	Mechanical Drawing 11	p. 139	(2)	Mechanical Drawing 12	p. 140
(1)	Military Training 1	p. 129	(1)	Military Training 2	p. 129
(2)	Shop, 22a, 24 or 25	p. 140	(2)	Shop 22a, 24 or 25	p. 140
(20⅓)			(20⅓)		

SOPHOMORE YEAR.

	First Semester.			Second Semester.	
(4)	Chemistry 3	p. 97	(2)	Biology 5	p. 92
(3)	English 7a	p. 110	(4)	Chemistry 4	p. 97
(3)	German 55 or 55a	p. 131	(3)	German 56 or 56a	p. 131
(5)	Mathematics 3	p. 121	(3)	History 1	p. 114
(1)	Military Training 3	p. 129	(5)	Mathematics 4	p. 121
(4)	Physics 1	p. 136	(1)	Military Training 4	p. 129
(⅔)	Surveying 4	p. 99	(4)	Physics 2	p. 136
(20⅔)			(22)		

JUNIOR YEAR.

	First Semester.			Second Semester.	
(4)	Applied Mechanics 1	p. 90	(4)	Applied Mechanics 2	p. 90
(3)	Chemistry 5	p. 97	(3)	Chemistry 6	p. 97
(5)	Chemistry 7	p. 97	(5)	Chemistry 8	p. 97
(3)	German 57	p. 132	(1)	Mechanical Laboratory 78	p. 127
(3)	*Military Training 5	p. 129	(3)	*Military Training 6	p. 129
(4)	Power Plants 21	p. 122	(3⅓)	Physics 6a	p. 137
(⅔)	Testing Materials 31	p. 100	(16⅓)		
(19⅔)					

SENIOR YEAR.

	First Semester.			Second Semester.	
(2)	Chemical Engineering 1	p. 96	(2)	Chemical Engineering 2	p. 96
(2)	Chemical Engineering 3	p. 96	(2)	Chemical Engineering 4	p. 96
(5)	Chemistry 9	p. 98	(5)	Chemistry 10	p. 98
(3)	†Chemistry 17	p. 98	(3)	†Chemistry 18	p. 98
(4)	Electrical Engineering 9	p. 108	(3)	Economics 1	p. 104
(3)	*Military Training 7	p. 129	(4)	Electrical Engineering 10	p. 108
(2⅔)	Physics 12	p. 137	(3)	*Military Training 8	p. 129
(18⅔)			(19)		

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* For students entering the Reserve Officers' Training Corps.

† This line of study is accepted as covering the thesis requirement.

CIVIL ENGINEERING

The School of Civil Engineering is composed of the following divisions: Railway, Highway, Structural, Hydraulic, Sanitary, and Topographical Engineering, Hydraulic Laboratory and Materials Testing Laboratory. Its plan of study is designed to provide theoretical training and an ample amount of practice; special attention is given to proficiency in field work, drafting and tests of constructive materials. In the Senior year an option is offered in one of the six branches of Structural, Hydraulic, Railway, Highway and Sanitary Engineering, and Concrete Construction.

Seniors in the School of Civil Engineering are required to attend a trip of inspection of engineering works during the first semester. Juniors in the School of Civil Engineering are required to attend an inspection trip during the second semester. Each trip occupies one or two days. A Surveying Camp is held for six weeks between the Sophomore and Junior years.

The figures in parenthesis preceding a course indicate the number of semester hours assigned to it. The semester hour is defined on page 63.

FRESHMAN YEAR.

First Semester.			Second Semester.		
(3)	English 1	p. 110	(3)	English 2	p. 110
(3)	*Mod. Lang. 31, 51 or 51a	p. 130	(3)	*Mod. Lang. 32, 52 or 52a	p. 130
(6)	Mathematics 1	p. 121	(6)	Mathematics 2	p. 121
(2)	Mechanical Drawing 11	p. 139	(2)	Mechanical Drawing 12	p. 140
(1)	Military Training 1	p. 129	(1)	Military Training 2	p. 129
(2⅔)	Shop 21, 22 or 24	p. 140	(2⅔)	Shop 21, 22 or 24	p. 140
(17⅔)			(17⅔)		

SOPHOMORE YEAR.

First Semester.			Second Semester.		
(3⅓)	Chemistry 21a	p. 98	(2)	Chemistry 22	p. 98
(2)	*Mod. Lang. 33, 53 or 53a	p. 130	(3)	English 5	p. 110
(5)	Mathematics 3	p. 121	(2)	*Mod. Lang. 34, 54 or 54a	p. 130
(1)	Military Training 3	p. 129	(5)	Mathematics 4	p. 121
(3)	Physics 1a	p. 136	(1)	Military Training 4	p. 129
(5)	Surveying 1	p. 99	(3)	Physics 2a	p. 136
			(⅔)	Physics 3a	p. 136
(19⅓)			(3)	Surveying 2	p. 99
			(19⅔)		

Surveying Camp.

Civil Engineering 5 .... p. 99
(From Monday preceding Commencement for six weeks.)

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* Students are required to take two years of French or of German.

JUNIOR YEAR.

First Semester.

(4)	Applied Mechanics 1	p. 90
(1⅓)	Mechanical Lab. 77	p. 127
(3)	‡Military Training 5	p. 129
(3)	Steam and Gas Pwr. 33	p. 123
(5⅓)	Stresses 21	p. 100
(3⅓)	Surveying 3	p. 99
(3)	English or Mod. Lang.	p. 110
(20)		

Second Semester.

(4)	Applied Mechanics 2	p. 90
(3)	Hydraulics 45	p. 102
(1⅓)	Hydraulic Lab. 48	p. 102
(3)	‡Military Training 6	p. 129
(3)	Railroads 17	p. 100
(2)	Roads and Pavements 38	p. 101
(3)	Testing Materials 35	p. 101
(3)	English or Mod. Lang.	p. 110
(19⅓)		

SENIOR YEAR.

First Semester.

(4)	Electrical Eng. 39	p. 109
(3)	History 1	p. 114
(3⅓)	Masonry Construct'n 33	p. 101
(3)	‡Military Training 7	p. 129
(4⅓)	Municipal Eng. 59	p. 102
(3)	Theory of Structures 23	p. 100
(17⅔)		

Second Semester.

(4)	Bridge Design 29	p. 100
(3)	Economics 1	p. 104
(2)	Eng. Contracts 56	p. 102
(2)	Geology 1	p. 114
(3)	‡Military Training 8	p. 129
(3⅓)	Reinforced Concrete Construction 34	p. 101
(2⅔)	†Thesis	p. 58
(17)		

OPTIONS

A choice of one option is to be made.

Highway Engineering.

(2)	Highway Engineering 6	p. 99
(2)	Highway Engineering 7	p. 100

Hydraulic Engineering.

(2)	Hydraulic Engineering 43	p. 101
(2)	Hydraulic Engineering 44	p. 101

Railway Engineering.

(2)	Railway Engineering 11	p. 100
(2)	Railway Engineering 12	p. 100

Reinforced Concrete Engineering.

(2)	Concrete 36	p. 101
(2)	Reinf. Concrete Bridges 37	p. 101

Sanitary Engineering.

(2)	Biology 5	p. 92
(2)	Sanitary Engineering 54	p. 102

Structural Engineering.

(2)	Structural Engineering 27	p. 100
(2)	Structural Engineering 28	p. 100

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† Three semester hours non-technical work may be chosen as substitute for thesis.

‡ For students entering the Reserve Officers' Training Corps.

ELECTRICAL ENGINEERING

The plan of study in this school is designed for those wishing a thorough theoretical and practical fitting for electrical engineering. That the electrical engineer may be acquainted with the design and operation of machinery, the preliminary plan of study is like that in mechanical engineering, differing essentially from the latter only in the last two years. For a thorough training in electrical engineering, the fundamental principles and laws of electricity and magnetism are first studied by means of text-books and laboratory exercises involving electrical measurements. Upon this foundation, more advanced problems involving the design of direct and alternating current machinery, and the predetermination and test of its operating characteristics, are taken up. Specialization is permitted in the senior year along one of several optional lines of study. Juniors are required to make one two-day inspection trip in the second semester to a nearby city for the purpose of studying manufacturing and operating methods as they are carried out in practice along electrical engineering lines. Seniors are required to take a longer trip for the same purpose, comprising several days during the first semester.

The figures in parenthesis preceding a course indicate the number of semester hours assigned to it. The semester hour is defined on page 63.

FRESHMAN YEAR.

First Semester.			Second Semester.		
(3)	English 1	p. 110	(3)	English 2	p. 110
(3)	*Mod. Lang. 31, 51 or 51a	p. 130	(3)	*Mod. Lang. 32, 52 or 52a	p. 130
(6)	Mathematics 1	p. 121	(6)	Mathematics 2	p. 121
(2)	Mechanical Drawing 11	p. 139	(2)	Mechanical Drawing 12	p. 140
(1)	Military Training 1	p. 129	(1)	Military Training 2	p. 129
(3)	Shop 21, 22 or 23	p. 140	(3)	Shop 21, 22 or 23	p. 140
(18)			(18)		

SOPHOMORE YEAR.

First Semester.			Second Semester.		
(3⅓)	Chemistry 21a	p. 98	(2)	Chemistry 22	p. 98
(3)	English 5 or 6	p. 110	(1)	E. E. Seminar 91	p. 110
(2)	*Mod. Lang. 33, 53 or 53a	p. 130	(3)	English 7a	p. 110
(5)	Mathematics 3	p. 121	(2)	*Mod. Lang. 34, 54 or 54a	p. 130
(1)	Military Training 3	p. 129	(5)	Mathematics 4	p. 121
(4)	Physics 1	p. 136	(1)	Military Training 4	p. 129
(2)	Shop 24, 25 or 26	p. 140	(4)	Physics 2	p. 136
(20⅓)			(1⅓)	Physics 3	p. 136
			(2)	Shop 24, 25 or 26	p. 140
			(21⅓)		

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* Students are required to take two years of French or of German.

JUNIOR YEAR.

First Semester.			Second Semester.		
(4)	Applied Mechanics 1	p. 90	(4)	Applied Mechanics 2	p. 90
(6)	Electrical Eng. 5	p. 108	(3)	Economics 1	p. 104
(3)	History 1	p. 114	(1)	Electrical Design 22	p. 108
(3)	*Military Training 5	p. 129	(7)	Electrical Eng. 6	p. 108
(3⅔)	Physics 6	p. 137	(3)	Engines and Boilers 31	p. 123
(⅔)	Testing Materials 31	p. 100	(3)	*Military Training 5	p. 129
			(1⅔)	Physics 7	p. 137
(17⅓)			(21⅔)		

SENIOR YEAR.

First Semester.			Second Semester.		
(3)	Electrical Design 23	p. 109	(3)	Corporate Organizat's 73	p. 110
(6)	Electrical Eng. 7	p. 108	(3)	Electrical Eng. 8	p. 108
(2)	Mechanical Lab. 74	p. 127	(2)	Electrical Lab. 12	p. 108
(3)	*Military Training 7	p. 129	(2)	E. E. Seminar 92	p. 110
(5)	Thermodynamics 37	p. 124	(3)	*Military Training 8	p. 129
			(2⅔)	Thesis	p. 58
(16)			(12⅔)		

OPTIONS

First Semester. (Three semester hours to be selected)			Second Semester. (Six semester hours to be selected)		

Public Utility Engineering.

(3)	Applied Psychology 7	p. 106	(3)	Applied Psychology 7	p. 106
(3)	Economics 13 or 15	p. 105	(3)	Economics 14 or 16	p. 105
(3)	Power Trans. and Dis. 74	p. 110	(3)	Elec. Railway Engr. 36	p. 109
(3)	Educational Sociology 19	p. 107	(3)	History 8	p. 114
(3)	Spanish 61	p. 132	(4)	Hydraulics 41 and 49	p. 101
(3)	Wireless Telegraphy 45	p. 109	(3)	Illuminating Engr. 61	p. 109
			(3)	Industrial Community 21	p. 107
			(3)	Mental Measurements 8	p. 106
			(3)	Spanish 62	p. 132
			(3)	Telephone Engr. 43	p. 109

Industrial Engineering.

(3)	Applied Psychology 7	p. 106	(3)	Applied Psychology 7	p. 106
(3)	Economics 13 or 15	p. 105	(3)	Economics 14 or 16	p. 105
(3)	Power Trans. and Dis. 74	p. 110	(2)	Elec. Design 24	p. 109
(3)	Educational Sociology 19	p. 107	(3)	History 8	p. 114
(3)	Spanish 61	p. 132	(3)	Illuminating Engr. 61	p. 109
(3)	Wireless Telegraphy 45	p. 109	(2)	Industrial Mgt. 28	p. 123
			(3)	Industrial Community 21	p. 107
			(3)	Mental Measurements 8	p. 106
			(3)	Spanish 62	p. 132

Theoretical Engineering.

(3)	Analytical Elec. Engr. 81	p. 110	(2)	Elec. Design 24	p. 109
(3)	Wireless Telegraphy 45	p. 109	(3)	Physics 16	p. 138
			(2)	Research	

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* For students entering the Reserve Officers' Training Corps.

MECHANICAL ENGINEERING

The instruction and practice in this school are given under the following divisions: Steam, gas, heating and ventilating, railway mechanical and experimental engineering, and industrial management. The work of the first two years includes courses in shop work which afford training in the methods and give practice in the process of construction. The last two years are characterized by work in machine design, steam and gas engine design and by laboratory practice in testing the performance of steam and gas engines and compressors, the strength of constructive materials and the efficiency of hydraulic machines. The plan of study is designed to be especially strong in the various phases of mechanical engineering. In the Senior year options are offered in one of the four branches of steam, gas, heating and ventilating, and railway mechanical engineering, and industrial management, giving the student an opportunity to specialize in his chosen field.

In the Junior year a two-day inspection trip is made during the second semester to various cities. In the Senior year an inspection trip is made during the first semester to some city of industrial importance, extending over a period of about four days.

The figures in parenthesis preceding a course indicate the number of semester hours assigned to it. The semester hour is defined on page 63.

FRESHMAN YEAR.

First Semester.			**Second Semester.**		
(3)	English 1	p. 110	(3)	English 2	p. 110
(3)	*Mod. Lang. 31, 51 or 51a	p. 130	(3)	*Mod. Lang. 32, 52 or 52a	p. 130
(6)	Mathematics 1	p. 121	(6)	Mathematics 2	p. 121
(2)	Mechanical Drawing 11	p. 139	(2)	Mechanical Drawing 12	p. 140
(1)	Military Training 1	p. 129	(1)	Military Training 2	p. 129
(3)	Shop 21, 22 or 23	p. 140	(3)	Shop 21, 22 or 23	p. 140
(18)			(18)		

SOPHOMORE YEAR.

First Semester.			**Second Semester.**		
(3⅓)	Chemistry 21a	p. 98	(2)	Chemistry 22	p. 98
(3)	English 7a	p. 110	(3)	English 5 or 6	p. 110
(2)	*Mod. Lang. 33, 53 or 53a	p. 130	(2)	*Mod. Lang. 34, 54 or 54a	p. 130
(5)	Mathematics 3	p. 121	(5)	Mathematics 4	p. 121
(1)	Military Training 3	p. 129	(1)	M. E. Seminar 90	p. 128
(3)	Physics 1a	p. 136	(3)	Mechanism 11	p. 122
(2)	Shop, 24, 25 or 26	p. 140	(1)	Military Training 4	p. 129
(19⅓)			(3)	Physics 2a	p. 136
			(2)	Shop 24, 25 or 26	p. 140
			(22)		

*** Students are required to take two years of French or of German.**

JUNIOR YEAR.

First Semester.			Second Semester.		
(4)	Applied Mechanics 1	p. 90	(4)	Applied Mechanics 2	p. 90
(3⅔)	Electrical Eng. 19	p. 108	(1)	Applied Mechanics 3	p. 90
(3)	Engines and Boilers 31	p. 123	(3)	Economics 1	p. 104
(3)	History 1	p. 114	(3⅔)	Electrical Eng. 20	p. 108
(2⅔)	Machine Design 61	p. 125	(2⅔)	Machine Design 62	p. 125
(1)	Mechanical Lab. 70	p. 126	(1)	Mechanical Lab. 71	p. 126
(3)	†Military Training 5	p. 129	(3)	†Military Training 6	p. 129
(1⅓)	Physics 5	p. 137	(⅔)	Testing Materials 31	p. 100
(⅔)	Valve Gears 34	p. 124	(3)	Thermodynamics 35	p. 124
(19⅓)			(19)		

SENIOR YEAR.

First Semester.			Second Semester.		
(3)	‡Elective		(1)	Contracts and Specif. 12	p. 122
(1)	Hydraulic Lab. 49	p. 102	(3)	‡Elective	
(3)	Hydraulics 41	p. 101	(2)	Industrial Eng. 24	p. 122
(2)	Industrial Eng. 23	p. 122	(2)	Mechanical Lab. 73	p. 126
(2)	Mechanical Lab. 72	p. 126	(3)	†Military Training 8	p. 129
(2⅓)	M. E. Seminar 81	p. 127	(3)	Power Plants 22	p. 122
(3)	†Military Training 7	p. 129	(2⅔)	Thesis	p. 58
(3)	Thermodynamicss 36	p. 124	(13⅔)		
(16⅓)					

OPTIONS

A choice of one option is to be made.

Gas Engineering.

(2)	Gas Engineering 41	p. 124	(2)	Gas Engineering 42	p. 124
(2)	*Gas Engineering Design 68	p. 126	(2)	*Gas Engineering Design 69	p. 126
(2)	*Motor Vehicle Design 84	p. 127	(2)	*Motor Vehicle Design 85	p. 127

Heating and Ventilating.

(2)	Heating and Ventilating 25	p. 123	(2)	Heating and Ventilating 26	p. 123
(2)	Heat. and Vent. Design 88	p. 128	(2)	Steam Pwr. Plant Design 83	p. 127

Industrial Management

(2)	Industrial Management 27	p. 123	(2)	Industrial Management 28	p. 123
(2)	Industrial Design 86	p. 127	(2)	Industrial Design 87	p. 127

Railway Mechanical Engineering.

(2)	Railway Mech. Eng. 51	p. 125	(2)	Locomotive Perform'ce 52	p. 125
(2)	Car Design 66	p. 125	(2)	Locomotive Design 67	p. 126

Steam Engineering.

(2)	Steam Turbine Eng. 39	p. 124	(2)	Steam Turbine Eng. 40	p. 124
(2)	*Engineering Design 64	p. 125	(2)	*Steam Turbine Design 65	p. 125
(2)	*Steam Engine Design 82	p. 127	(2)	*Steam Pwr. Plant Design 83	p. 127

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* One line to be omitted.

† For students entering the Reserve Officers' Training Corps.

‡ One line of study to be chosen from Economics 13, 14, 15, 16; Education 7, 8, 19, 21; History 8; Spanish 61, 62.

PHARMACY

The School of Pharmacy offers two Plans of Study presenting superior opportunities to those who wish to train themselves thoroughly for the important duties of the professional or manufacturing pharmacist, the pharmaceutical chemist, or the retail druggist.

The School of Pharmacy takes an active part in the work of the Medical and Infirmary Service of the University, and compounds and dispenses all the medicines for this Service. The senior students compound and dispense hundreds of prescriptions under the careful instruction and guidance of a registered pharmacist. A practical application of their instruction in compounding is thus obtained.

The requirements of the Laws of Indiana regulating the professional training and licensing of druggists are more than satisfied by the training furnished in this school.

Two Year Plan of Study

Leading to the Degree of Pharmaceutical Chemist

This is intended to fit students for the practice of Pharmacy, including the preparation of medicine, the compounding of prescriptions, and the chemical and microscopical examination of medicinal materials. The plan of study includes the professional courses set forth in the National Pharmaceutical Syllabus, and in addition, a thorough grounding in the sciences—Biology and Chemistry—upon which Pharmacy is so largely based. The number of hours of instruction greatly exceeds the number required in the N. P. Syllabus.

The figures in parenthesis preceding a course indicate the number of semester hours assigned to it. The semester hour is defined on page 63.

FIRST YEAR.

	First Semester.			Second Semester.	
(3)	Biology 3	p. 91	(3)	Biology 4	p. 91
(3)	Biology 46	p. 95	(3)	Chemistry 2 or 2a	p. 96
(3)	Chemistry 1 or 1a	p. 96	(3)	English 2	p. 110
(3)	English 1	p. 110	(2)	Materia Medica 6	p. 120
(2)	Materia Medica 5	p. 120	(1)	Military Training 2	p. 129
(1)	Military Training 1	p. 129	(4)	Pharm. Chemistry 8	p. 132
(3⅓)	Pharmacy 11	p. 134	(3⅓)	Pharmacy 12	p. 134
(2)	Pharmacy 27	p. 135	(1)	Pharmacy 28	p. 135
(20⅓)			(20⅓)		

SECOND YEAR.

First Semester.			Second Semester.		
(2)	Biology 66	p. 96	(2)	Biology 67	p. 96
(2)	Materia Medica 7	p. 120	(2)	Materia Medica 8	p. 120
(1)	Military Training 3	p. 129	(2)	Materia Medica 10	p. 120
(4)	Pharm. Chemistry 9	p. 132	(4)	Materia Medica 12	p. 120
(2)	Pharm. Chemistry 11	p. 132	(1)	Military Training 4	p. 129
(4)	Pharm. Chemistry 15	p. 133	(3)	Pharm. Chemistry 12	p. 133
(2)	Pharmacy 17	p. 134	(2)	Pharmacy 18	p. 134
(3)	Pharmacy 25	p. 134	(1)	Pharmacy 19	p. 134
			(3)	Pharmacy 26	p. 134
(20)			(20)		

Four Year Plan of Study

Leading to Degree of Bachelor of Science in Pharmacy (and entitling also to the Ph. C. degree)

This is intended to fit students for responsible laboratory positions with the State or Government or with manufacturing establishments, wholesale houses and importers. Recent pure food and drug legislation has created many such positions. The best laboratory positions are for men whose education has been broad and general, supplemented with the necessary professional training in pharmacy.

Electives are offered to prepare students for teaching positions.

The figures in parenthesis preceding a course indicate the number of semester hours assigned to it. The semester hour is defined on page 63.

FRESHMAN YEAR.

First Semester.			Second Semester.		
(3)	Biology 3	p. 91	(3)	Biology 4	p. 91
(3)	Chemistry 1 or 1a	p. 96	(3)	Chemistry 2 or 2a	p. 96
(3)	English 1	p. 110	(3)	English 2	p. 110
(2)	Materia Medica 5	p. 120	(2)	Materia Medica 6	p. 120
(3)	Mathematics 11	p. 121	(3)	Mathematics 12	p. 121
(1)	Military Training 1	p. 129	(1)	Military Training 2	p. 129
(3⅓)	Pharmacy 11	p. 134	(3⅓)	Pharmacy 12	p. 134
(2)	Pharmacy 27	p. 135	(1)	Pharmacy 28	p. 135
(20)			(19)		

SOPHOMORE YEAR.

First Semester.			Second Semester.		
(4)	Biology 18	p. 93	(4)	Biology 19	p. 93
(4)	*Chemistry 3	p. 97	(4)	*Chemistry 4	p. 97
(3)	English 5	p. 110	(3)	English 6	p. 110
(3)	German 51 or 51a	p. 131	(3)	German 52 or 52a	p. 131
(1)	Military Training 3	p. 129	(1)	Military Training 4	p. 129
(4)	Pharm. Chemistry 15	p. 133	(4)	Pharm. Chemistry 15a	p. 133
(18⅓)			(18⅓)		

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* Two-year students changing to the four-year plan of study may offer Pharmaceutical Chemistry 8, 8a in place of Chemistry 3, 4.

JUNIOR YEAR.

First Semester.			Second Semester.		
(3)	Biology 39a	p. 94	(3)	Biology 39b	p. 94
(3)	Chemistry 5	p. 97	(3)	*Chemistry 6	p. 97
(3)	German 55 or 55a	p. 131	(3)	German 56 or 56a	p. 131
(3)	History 1	p. 114	(2)	Materia Medica 10	p. 120
(3)	†Military Training 5	p. 129	(3)	†Military Training 6	p. 129
(2)	Pharm. Chemistry 11	p. 132	(3)	Pharm. Chemistry 12	p. 133
(14)			(14)		

ELECTIVES

Electives for the year must total at least 8 semester hours.

NOTE.—Students not offering Physics as the entrance science will take Physics 1a and 2a in addition to the 8 semester hours elected.

First Semester.			Second Semester.		
(4)	Biology 36	p. 94	(4)	Biology 62	p. 96
(4)	Biology 61	p. 95	(3)	Education 2	p. 105
(3)	Education 1	p. 105	(3)	French 22	p. 129
(3)	French 21	p. 129	(3)	Mathematics 14	p. 121
(3)	Mathematics 13	p. 121	(2)	Pharm. Chemistry 18	p. 133
(2)	Pharm. Chemistry 17	p. 133			

SENIOR YEAR.

First Semester.			Second Semester.		
(3)	Economics 11	p. 104	(2)	Materia Medica 8	p. 120
(2)	Materia Medica 7	p. 120	(4)	Materia Medica 12	p. 120
(3)	†Military Training 7	p. 129	(3)	†Military Training 8	p. 129
(3)	Pharm. Chemistry 13	p. 133	(3)	Pharm. Chemistry 14	p. 133
(2)	Pharmacy 17	p. 134	(2)	Pharmacy 18	p. 134
(3)	Pharmacy 25	p. 134	(3)	Pharmacy 26	p. 134
			(1)	Pharmacy 19	p. 134
(13)			(15)		

ELECTIVES

Electives for the year must total at least 8 semester hours.

First Semester.			Second Semester.		
(4)	Biology 36	p. 94	(4)	Biology 62	p. 96
(4)	Biology 61	p. 95	(4)	Chemistry 12	p. 98
(4)	Chemistry 11	p. 98	(3)	Chemistry 18	p. 98
(3)	Chemistry 17	p. 98	(3)	Economics 12 or 21	p. 104
(3)	Education 1	p. 105	(3)	Education 2	p. 105
(3)	Education 3	p. 105	(3)	Education 4	p. 105
(3)	French 21	p. 129	(3)	French 22	p. 129
(3)	French 23	p. 129	(3)	French 24	p. 129
(3)	German 57	p. 132	(2)	Materia Medica 14	p. 120
(4)	Pharm. Chemistry 16	p. 133	(4)	Pharm. Chemistry 16	p. 133
(2)	Pharm. Chemistry 17	p. 133	(2)	Pharm. Chemistry 18	p. 133

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* Students changing from the two-year to the four-year plan of study may offer Pharmaceutical Chemistry 9 in place of Chemistry 6.

† For students entering the Reserve Officers' Training Corps.

SCIENCE

The School of Science provides introductory and advanced courses of instruction in the sciences—Biology, Chemistry, Physics—and in those other subjects that are essential to a broad scientific education—Drawing, Economics, English, French, Human Physiology, German, History, Mathematics,—and in Home Economics and Art. Certain courses are required of all students in the School of Science, others are elective—to be chosen by the student under such restrictions as to insure a well-balanced training. By making a proper choice of electives the student may fit himself for practical work in Biology, Chemistry, Education, Forestry, Home Economics, Art, or Physics, or for further training in a Medical College. The instruction offered also furnishes preparation for the teaching of general science or of any one of the sciences mentioned. The plan of study for all students in Science includes the following:

(*a*) Required Courses.—1 year Drawing (free-hand or mechanical), 1 year Economics, 2 years English, 2 years French or German, 1 year History, 1 year Mathematics, 1 year Physiology, 1 year Biology, and 1 year Chemistry.

(*b*) Electives.—In addition to the foregoing, electives must be taken for specialization in Chemistry, Forestry, Home Economics, Preparation for Medicine, Training for Teachers, or General Science.

The figures in parenthesis preceding a course indicate the number of semester hours assigned to it. The semester hour is defined on page 63.

FRESHMAN YEAR.

First Semester.			Second Semester.		
(2)	‡Art 1, or Mech. Draw. 11	p. 91	(2)	‡Art 2, or Mech. Draw. 12	p. 91
(3)	Biology 1	p. 91	(3)	Biology 2	p. 91
(3)	Chemistry 1	p. 96	(3)	Chemistry 2	p. 96
(3)	English 1	p. 110	(3)	English 2	p. 110
(3)	†French 21	p. 129	(3)	†French 22	p. 129
(3)	†German 41 or 41a	p. 130	(3)	†German 42 or 42a	p. 130
(4)	‡Home Economics, 1 or 1a	p. 115	(4)	‡Home Economics 2 or 2a	p. 115
(3)	Mathematics 11	p. 121	(3)	Mathematics 12	p. 121
(1)	Military Training 1	p. 129	(1)	Military Training 2	p. 129

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‡ Students taking Home Economics 1, 2 will defer Art 1 and 2 until the Sophomore year, and will be credited with one line of electives for the Sophomore year.

† See note on next page.

SOPHOMORE YEAR.

REQUIRED

First Semester.			Second Semester.		
(3)	English 5	p. 110	(3)	English 6	p. 110
(3)	†French 23	p. 129	(3)	†French 24	p. 129
(3)	†German 43 or 43a	p. 130	(3)	†German 44 or 44a	p. 130
(1)	Military Training 3	p. 129	(1)	Military Training 4	p. 129
(7)			(7)		

OPTIONS

Choice must be made of one of the groups.

Note.—Students not offering Physics as the entrance science will take Physics 1a and 2a in addition to the elected group.

Forestry.

(4)	Biology 10	p. 92	(4)	Biology 11	p. 92
(3)	*Education 1	p. 105	(3)	*Education 2	p. 105
(4)	Forestry 1	p. 112	(4)	Forestry 2	p. 112
(3)	*Mathematics 13	p. 121	(3)	*Mathematics 14	p. 121
(3)	*Modern Language	p. 129	(3)	*Modern Language	p. 129

Home Economics.

(2)	Art 1	p. 91	(2)	Art 2	p. 91
(3)	Chemistry 29	p. 98	(3)	Chemistry 30	p. 98
(3)	Education 1	p. 105	(3)	Education 2	p. 105
(4)	‡Home Economics 10	p. 116	(4)	‡Biology 7	p. 92

Chemistry.

(4)	Chemistry 3	p. 97	(4)	Chemistry 4	p. 97
(3)	French 21	p. 129	(3)	French 22	p. 129
(3)	Mathematics 13	p. 121	(3)	Mathematics 14	p. 121
(3)	Physics 1	p. 136	(3)	Physics 2	p. 136

Preparation for Medicine.

(4)	Biology 30	p. 93	(4)	Biology 31	p. 93
(4)	Chemistry 3	p. 97	(4)	Chemistry 4	p. 97
(3)	*Education 1	p. 105	(3)	*Education 2	p. 105
(3)	*Modern Language	p. 129	(3)	*Modern Language	p. 129
(3)	*Mathematics 13	p. 121	(3)	*Mathematics 14	p. 121

Training for Teaching.

(3)	Education 1	p. 105	(3)	Education 2	p. 105

Also at least two other lines of work elected in such subjects as may be desired for teaching later.

General Science.

Students wishing to take work in general science without specializing in any of the groups above should confer with the Dean of the School of Science.

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* One line to be chosen.

† Either French or German must be taken in the Freshman year. The language so chosen must be continued in the Sophomore year. Students intending to elect advanced courses in the Chemistry group may take German 55, 56 or 55a, 56a, instead of 43, 44 or 43a, 44a. Students who intend to elect the Junior B group in Home Economics must take German in the Freshman year.

‡ Half of the class will take Biology 7 in the first semester and defer Home Economics 10 until the second.

JUNIOR YEAR.

REQUIRED

	First Semester.			Second Semester.	
(3)	Biology 39a	p. 94	(3)	Biology 39b	p. 94
(3)	History 2	p. 114	(3)	History 3	p. 114
(3)	†Military Training 5	p. 129	(3)	†Military Training 6	p. 129
(6)			(6)		

OPTIONS

Choice must be made of one of the groups.

Forestry.

(4)	Forestry 3	p. 113	(4)	Forestry 4	p. 113
(4)	Forestry 5	p. 113	(4)	Forestry 6	p. 113
(3)	*Education 3	p. 106	(3)	*Education 4	p. 106
(3)	*English	p. 110	(3)	*English	p. 110
(3)	*Modern Language	p. 129	(3)	*Modern Language	p. 129

Home Economics.

A. GROUP

(3)	Education 3	p. 106	(3)	Education 4	p. 106
(3)	*English 8	p. 111	(3)	*English 9	p. 111
(4)	Home Economics 11	p. 116	(4)	Home Economics 12	p. 116
(4)	Home Economics 13	p. 116	(4)	Home Economics 13a	p. 116
(3)	*Modern Language	p. 129	(3)	*Modern Language	p. 129

‡B. GROUP

(3)	Chemistry 5	p. 97	(3)	Chemistry 6	p. 97
(3)	English 8	p. 111	(3)	English 9	p. 111
(3)	German 55 or 55a	p. 131	(3)	German 56 or 56a	p. 131
(3)	Home Economics 18	p. 117	(3)	Home Economics 5	p. 115

Chemistry.

(3)	Chemistry 5	p. 97	(3)	Chemistry 6	p. 97
(5)	Chemistry 7	p. 97	(5)	Chemistry 8	p. 97
(3)	*French 23	p. 129	(3)	*French 24	p. 129
(3)	*German 45	p. 130	(3)	*German 46	p. 130
(3)	*Physics 9	p. 187	(3)	*Physics 10	p. 187

Preparation for Medicine.

(4)	Biology 34	p. 94	(4)	Biology 35	p. 94
(4)	Biology 36	p. 94	(4)	Biology 37	p. 94
(3)	Chemistry 5	p. 97	(3)	Chemistry 6	p. 97

Training for Teaching.

(3)	Education 3	p. 106	(3)	Education 4	p. 106

Also enough other work, in subjects desired for teaching later, to make a total in each semester of at least 12 semester hours.

General Science.

Students wishing to take work in general science without specializing in any of the groups above should confer with Dean of the School of Science.

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* One line to be chosen.
† For students entering the Reserve Officers' Training Corps.
‡ Only approved students in Chemistry may choose this group.

SENIOR YEAR.

REQUIRED

First Semester.	Second Semester.
(3) Economics 11 .... p. 104	(3) Economics 12 .... p. 104
(3) ‡Military Training 7 .... p. 129	(3) ‡Military Training 8 .... p. 129
	(4) Thesis .... p. 58

OPTIONS

Choice must be made of one of the groups.

Forestry.

(3) †Economics .... p. 104	(3) †Economics .... p. 104
(3) †Education .... p. 105	(3) †Education .... p. 105
(3) †English .... p. 110	(3) †English .... p. 110
(3) Forestry 7 .... p. 113	(3) Forestry 8 .... p. 113
(3) Forestry 9 .... p. 113	(3) Forestry 10 .... p. 113
(4) Forestry 11 .... p. 113	(3) Forestry 12 .... p. 113
(3) †History .... p. 114	(3) †History .... p. 114
(3) †Modern Language .... p. 129	(3) †Modern Language .... p. 129

Home Economics.

A. GROUP

(2) Education 9 .... p. 106	(2) Education 10 .... p. 106
(4) Education 13 .... p. 107	(4) Education 14 .... p. 107
(3) *English 11 .... p. 111	(3) *English 12 .... p. 111
(3) Home Economics 14 .... p. 116	(3) Home Economics 15 .... p. 116
(3) Home Economics 21 .... p. 117	(4) Home Economics 9 .... p. 115
(3) *Modern Language .... p. 129	(3) *Modern Language .... p. 129

B. GROUP

(4) Biology 18 .... p. 93	(4) Biology 19 .... p. 93
(4) Chemistry 11 .... p. 98	(4) Chemistry 12 .... p. 98
(3) English 11 .... p. 111	(3) English 12 .... p. 111
(4) Home Economics 16 .... p. 117	(4) Home Economics 17 .... p. 117
(2) Home Economics 19 .... p. 117	(2) Home Economics 20 .... p. 117

Chemistry.

(4) *Biology 18 .... p. 93	(4) *Biology 19 .... p. 93
(2) †Chemical Eng. 1 and 3 .... p. 96	(2) †Chemical Eng. 2 and 4 .... p. 96
(5) *Chemistry 9 .... p. 98	(5) *Chemistry 10 .... p. 98
(4) Chemistry 15 .... p. 98	(4) Chemistry 16 .... p. 98
(3) †Chemistry 17 .... p. 98	(3) †Chemistry 18 .... p. 98
(3) †French 25 .... p. 129	(3) †French 26 .... p. 129
(3) †German 47 .... p. 131	(3) †German 48 .... p. 131
(4) *Physics 25 .... p. 138	(4) *Physics 26 .... p. 138
(3) †Mathematics 15 .... p. 121	(3) †Mathematics 16 .... p. 121

Preparation for Medicine.

(4) Biology 18 .... p. 93	(4) Biology 19 .... p. 93
(4) Biology 35a .... p. 94	(4) Biology 37 .... p. 94
(4) Biology 40 .... p. 95	(4) Biology 41 .... p. 95
(5) Chemistry 7 .... p. 97	(5) Chemistry 8 .... p. 97

Training for Teaching.

(2) Education 9 .... p. 106	(2) Education 10 .... p. 106
(4) Education 15 or 17 .... p. 107	(4) Education 16 or 18 .... p. 107

Also enough other work, in subjects desired for teaching later, to make a total for each semester of 15 semester hours.

General Science.

Students wishing to take work in general science without specializing as above should confer with the Dean of the School of Science.

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* One line of study should be chosen. † Two lines of study to be chosen. Three may be taken. ‡ For students entering the Reserve Officers' Training Corps.

DESCRIPTION OF UNDERGRADUATE COURSES

All of the courses are grouped under the general heads listed below, and these are arranged alphabetically for convenience of reference. Under each general head, the courses are described in their numerical order. In the description, the top line in each case presents: *first,* the official number of the course; *second,* its special title; *third,* the semester in which it is administered; *fourth,* the number of hours per week of recitation or practice; and *fifth,* the classes of students of whom the course is required. Under AGRONOMY, for example,

"**1. Soils.**—Sem. 1. 2 + 2 (2A)"

indicates that the course in *Agronomy* 1 is in *Soils,* given in the *first* semester for 2 *recitation* and 2 *laboratory* hours per week and required of *Sophomores* in *Agriculture.* The abbreviation in parenthesis gives the class year of the students and the initial of the School; the prefixes "el" and "op" indicate that the course is *elective* or *optional* for such students, and not required. In the case of students in the two-year plan of study in Pharmacy, the class number *follows* the letter P, to distinguish them from members of the four-year classes.

Agronomy	86
Animal Husbandry	88
Applied Mechanics	90
Art	91
Biology	91
Chemical Engineering	96
Chemistry	96
Civil Engineering	99
Dairy Husbandry	102
Economics	104
Education	105
Electrical Engineering	108
English	110
Entomology	111
Forestry	112
Geology	114
History	114
Home Economics	115
Horticulture	117
Materia Medica	120
Mathematics	121
Mechanical Engineering	122
Military Training	128
Modern Language	129
Pharmaceutical Chemistry	132
Pharmacy	134
Physical Education	135
Physics	136
Poultry	138
Practical Mechanics	139

AGRONOMY

Professor Fisher in charge.

Professors Fisher, Latta, Wiancko; Associate Professors Aitkenhead, Carr, Robbins, and Wallace; Assistant Professors Campbell, Cunningham, Sears, and Slipher; Instructor Lewis.

1. Soils.—Sem. 1. 2 + 2 (2 A)

Precedes Agronomy 3, 5 and 22.

This course treats of the origin, formation, and classification of soils, their physical properties, mechanical composition, relation to water, air, and heat; the principles and methods of tillage; the principles of drainage and its effects upon moisture supply, temperature, aeration, chemical and biological activity; drouth resistance, and general productiveness of soils; the physical improvement of soils, etc. *Professors Wallace and Slipher.*

2. Field Crops.—Sem. 1 or 2. 2 + 2 (2 A)

Precedes Agronomy 4.

This course deals with the characteristics, adaptations, culture, and uses of the most important grain and forage crops, and the principles of crop rotation, with their application under various conditions. The course is divided in two parts:

(a) GRAIN CROPS.—The first half of the semester is devoted to the grain crops, including laboratory work in corn and other grain judging and simple germination and purity tests of seeds.

(b) FORAGE CROPS.—The second half of the semester is devoted to the forage crops, including laboratory studies of grasses, clovers, and other important plants in this class. *Professor Robbins.*

3. Soils.—Sem. 2. 2 + 4 (el. 3 A)

Must be preceded by Agronomy 1.
Precedes Agronomy 5.

This course treats of the general and particular physical properties of common soil types under various conditions and methods of treatment in relation to their behavior towards moisture, air, and heat, and of special topics related to soil management. Special attention is given to the practical application of the results of the student's work in the laboratory. *Professors Wallace and Slipher.*

4. Field Crops.—Sem. 1. 2 + 4 (el. 3 A)

Must be preceded by Agronomy 2.
Precedes Agronomy 6.

The lectures in this course deal with the characteristics, adaptations, culture, and uses of important field crops not dealt with in Agronomy 2. The laboratory work is divided into two parts.

(a) Commercial seed testing for germination and purity, including a study of all kinds of weed seeds, in the first half of the semester.

(b) Advanced corn and other grain judging, in the second half of the semester. *Professors Fisher and Robbins.*

5. Soils.—Sem. 1. 2 + 2 (el. 4 A)

Must be preceded by Agronomy 1, 3, 8 and 22.
Precedes Agronomy 6.

This course deals with studies of Experiment Station methods and results in soil investigation, including the effects of certain systems of cropping upon the constitution of the soil and upon its general productiveness; methods of conducting soil surveys, mechanical analyses of important soil types, and studies of the adaptability of certain soils to certain crops. *Professor Wiancko.*

6. Field Crops.—Sem. 2. 2 + 2 (el. 4 A)

Must be preceded by Agronomy 4 and 5.

This course deals with Experiment Station methods used in the breeding of the common field crops and the principles upon which they are based; special studies of systems of cropping; method of conducting crop investigations and other studies of interest to the Agronomy specialist. *Professor Wiancko.*

7. Agricultural Chemistry.—Sem. 1. 2 + 3 (el. 3 A)

This course deals with the chemistry of essential plant constituents; the composition of plant and animal bodies; plant and animal nutrition and growth; fermentation; relation of food to plant and animal requirements. *Professors Carr and Sears.*

8. Agricultural Chemistry.—Sem. 2. 2 + 3 (el. 3 A)

Must be preceded by Agronomy 22.

Precedes Agronomy 5.

This course consists of advanced work in soil fertility and treats of the chemistry of the soil constituents and the availability of the natural plant food in soils; the various fertilizer raw materials, their sources and composition; the manufacture of commercial fertilizers; the availability of plant food in various crop residues, manures and fertilizers; the comparative efficiency and recovery of plant food in different manures and fertilizers and the causes of waste; the various theories of fertilizer action; the chemical examination of soils, manures and fertilizers; the fertilization of special soils and crops, etc. *Professors Carr and Sears.*

NOTE.—Chemistry 19 and 20 (AGRICULTURAL ANALYSIS), electives for Seniors in Agriculture, should be regarded as a co-ordinate element in the Agronomy instruction. See page 98.

11. Agricultural Botany.—Sem. 1 or 2. 2 + 2 (1 A)

This course treats of the identification and classification of the common plants; the characteristics, propagation, rate of increase, and condition of growth of noxious weeds and useful plants on the farm; the time and manner of destroying weeds, etc. *Professor Campbell.*

13. Science and Art of Agriculture.—Sem. 1 or 2. 1 + 0 (el. 4 A)

This course treats of the evolution of the art and science of Agriculture; the relations of theory, experiment, practice, and science in the advancement of Agriculture; lines and methods of work for the promotion of the science of Agriculture. *Professor Latta.*

16. Farm Mechanics.—Sem. 1 or 2. 1 + 4 (2 A)

The course includes instruction and practice in the mixing of cement and its use on the farm; the operation of gasoline engines under varying conditions; the splicing of ropes and the lacing of belts; the determination of the principles of draft as applied to wagons and farm implements; the adjustment and operation of some of the more important farm implements and machines; the testing of the adaptability and capacity of different pumps for use on the farm; the fitting and joining of pipes; the use, care and management of the steam engine and boiler. *Professors Aitkenhead and Cunningham; Mr. Lewis.*

17. Farm Mechanics.—Sem. 1. 1 + 6 (el. 4 A)

This course is designed to teach the student how to lay out and construct farm drainage systems; also, how to lay out building sites and to locate driveways on the farm. *Professors Aitkenhead and Cunningham.*

18. Farm Motors.—Sem. 2. 1 + 6 (el. 4 A)

Work is given in the care and operation of tractors and stationary engines. Farm lighting and water systems are considered. Some advanced work in concrete is also given. *Professors Aitkenhead and Cunningham.*

19-20. Farm Management.—Sem. 1 and 2. 3 + 0 (4 A)

This work deals with such subjects as choosing, equipping, and operating a farm; types of farming; planning rotations; cost of production; successful marketing; rental systems; farm labor; farm records and accounts. A text book is used and collateral reading and reports are required. *Professor Fisher*

21. Drawing and Farm Buildings.—Sem. 1 or 2. 1 + 4 (1 A)

This course takes up the design and arrangement of farm structures. A close study is made of the advantages and disadvantages of the different types of buildings and the different kinds of building material. *Professor Aitkenhead and Mr. Lewis.*

22. Soil Fertility.—Sem. 2. 2 + 2 (2 A)

Must be preceded by Agronomy 1 and Chemistry 1, and preceded or accompanied by Chemistry 2.

Precedes Agronomy 5 and 8.

This course treats of the general management of soils, including practical studies in the maintenance of soil fertility and the improvement of run down soils; the plant food requirements of various crops; the outgo and income of plant food in the soil; the principles of crop rotation; the value and maintenance of organic matter in the soil; the conservation and utilization of crop residues; the use of legumes and cover crops; the determination of plant food requirements of soils by field plat tests; the production, value and management of manures; the practical use of lime and commercial fertilizers; home mixing; the relation of bacteria to soil fertility; soil inoculation, etc. *Professors Wallace and Slipher.*

ANIMAL HUSBANDRY

Professor Skinner in charge.

Professors Skinner and Craig; Associate Professors Allen and Smith; Assistant Professors Gobble and Roberts; Instructors Beall and Whiting.

2. Live-Stock Management.—Sem. 1 or 2. 3 + 2 (2 A)

Precedes Animal Husbandry 6, and 10, and precedes or accompanies 9.

A detailed study of the practical methods and principles involved in the feeding, breeding and management of all classes of live stock. The laboratory work consists of demonstrations and exercises in the growing and handling of grade and pedigreed stock. *Professor Gobble; Mr. Beall.*

4. Live-Stock Judging.—Sem. 1 or 2. 1 + 4 (1 A)

Market Types and Classes of Beef and Horses.

Precedes Animal Husbandry 6, 10, 22 and 23.

Scoring of individuals and judging of groups representing the more common classes and grades of beef cattle and horses from the standpoint of the market and producer. *Professors Allen, Gobble and Smith; Mr. Beall.*

6. Live-Stock Industry, Markets and Research.—Sem. 2. 2 + 2 (el. 4 A)

Must be preceded by Animal Husbandry 2, 4, 7, 8, 22 and 23, and preceded or accompanied by 9.

The history, development, organization and status of the meat, wool and horse industries; the packing industry and its by-products; live-stock markets including the sale of pure-bred stock. A study is made of the publications of the Bureau of Animal Industry and the Experiment Stations and of other Animal Husbandry literature. *Professors Allen, Smith and Skinner.*

7. Live-Stock Judging.—Sem. 1 or 2. 1 + 4 (1 A)

Market Types of Swine, Sheep, and Dairy Cattle.

Precedes Animal Husbandry 6, 10, 22 and 23.

Scoring of individuals and judging of groups representing the more common classes of swine, sheep, and dairy cattle from the standpoint of the market and the producer. *Professors Allen, Gobble and Smith; Mr. Beall.*

8. Genetics.—Sem. 1. 3 + 0 (3 A)

Must be preceded by Biology 1 and 2.

Precedes Animal Husbandry 6 and precedes or accompanies Animal Husbandry 10.

A study of variation and its causes; heredity and the physical basis of transmission; the effects of environment upon development and its relation to heredity; co-relation and methods of studying hereditary problems. Considerable time is devoted to the recent experimental studies calculated to test theories which have important bearings in practical animal and plant breeding. *Professor Smith.*

9. Animal Nutrition.—Sem. 2. 3 + 0 (3 A)

Must be preceded by Chemistry 1 and 2, and preceded or accompanied by Animal Husbandry 2.

Precedes or accompanies Animal Husbandry 6.

A consideration of the classes of food nutrients; the ordinary and possible functions of each in the animal body; digestion, absorption, and assimilation; the extent and nature of the demands for maintenance, growth, fattening, milk, and work; principles in selection of rations; feed-stuffs; feeding standards, and compounding rations. *Professor Smith.*

10. Live-Stock Breeding and Pedigree Studies.—Sem. 1. 2 + 2 (el. 4 A)

Must be preceded by Animal Husbandry 2, 4, 7, 22 and 23, and preceded or accompanied by Animal Husbandry 8.

Precedes Animal Husbandry 6.

This course is designed to meet the needs of students who expect to become live-stock breeders. Training is given in the intelligent use of herd books. The work involves the tabulation and study of pedigrees of famous breeding and show animals; interpretation of pedigrees; a study of the history, work and methods of early and more recent constructive breeders; the influence of various families and individuals; the history, purpose and organization of breed associations; national laws affecting the importation and exportation of pedigreed live stock. *Professor Allen.*

12. Veterinary Anatomy.—Sem. 1. 2 + 4 (el. A)

Precedes Animal Husbandry 14 and 15.

A course designed for students who expect to engage in raising live stock. The lectures are supplemented by laboratory exercises in sketching bones, dissecting the musculature of the horse and examining horses for unsoundness.

Professor Craig and Dr. Whiting.

13. Veterinary Physiology and Visceral Anatomy.—Sem. 2. 2+4 (el. A)

This course deals with the special physiology of the animal body, and includes a study of the gross anatomy of the viscera. *Professor Craig.*

14. Veterinary Surgery and Medicine.—Sem. 1. 2 + 2 (el. 4 A)

Must be preceded by Animal Husbandry 12, and preceded or accompanied by Biology 18 and 19.

Precedes Animal Husbandry 15.

This course includes a study of inflammations, injuries, such as wounds and fractures, tumors, and physical diagnosis of disease. The lectures are supplemented by laboratory exercises and clinical demonstrations. *Professor Roberts.*

15. Infectious Diseases.—Sem. 2. 2 + 2 (.el 4 A)

Must be preceded by Animal Husbandry 12 and 14, and preceded or accompanied by Biology 18 and 19.

This course considers farm sanitation, etiology, recognition and prevention of infectious diseases of domestic animals. The lectures are supplemented by laboratory exercises and clinical demonstrations. *Professor Roberts.*

21. Live-Stock Production.—Sem. 1. 2 + 2 (el. 4 A)

Must be preceded by Animal Husbandry 2, 4, 7, 8 and 9.

This course includes a study of live-stock production in foreign countries, in the United States, in Indiana, and on the average farm; the history, distribution, adaptability and characteristics of types and breeds; and the purchase, breeding, development and marketing of both grade and pure-bred animals. *Professor Gobble.*

22-23. Breeds of Live Stock; Advanced Judging. Sem. 1 and 2 2 + 4 (el. 3 A)

Must be preceded by Animal Husbandry 4 and 7.

Precedes Animal Husbandry 6 and 10.

A study of the origin, history, standards and development, breed characteristics and adaptation of the more important breeds of horses, cattle, sheep and swine. Judging representative groups of the different breeds according to their official standards and from the standpoint of the breeder and the market. *Professor Allen.*

APPLIED MECHANICS

Professor Dukes in charge.

Professor Dukes; Assistant Professor Lawrance.

1. Applied Mechanics.—Sem. 1. 4 + 0 (3 Ch C E M)

Must be preceded by Mathematics 4.

Precedes Applied Mechanics 2 and 3; Civil Engineering 33, 34, 36 and 41; Mechanical Engineering 64, 65, 66, 67, 68, 69, 82, 83, 84 and 85, and precedes or accompanies Civil Engineering 31; Mechanical Engineering 63, 72 and 73; accompanies Mechanical Engineering 61, 62, and Civil Engineering 21.

This course begins with a study of the general principles of equilibrium, and their applications to jointed frames and machines. It then treats rectilinear, curvilinear and harmonic motions; the relativity of motions; force, mass and acceleration. This is followed by a study of physical properties of the common engineering materials; the stresses and corresponding deformations of these materials in tension, compression, shear; the principles underlying the investigation and design of pipes and cylinders carrying internal fluid pressure; riveted joints, beams and columns, in connection with which the center of gravity and moment of inertia of areas are studied. The strength and elastic properties of engineering materials as shown by actual tests, as well as the familiarizing of the student with the structural shapes as given in handbooks of the various steel companies, are given special attention. The solution by the student of a large number of practical numerical problems is an important feature of the course. *Professors Dukes and Lawrance.*

2. Applied Mechanics.—Sem. 2. 4 + 0 (3 Ch C E M)

Must be preceded by Applied Mechanics 1 and Physics 1.

Precedes Mechanical Engineering 64, 65, 66, 67, 68, 69, 82 and 83; precedes or accompanies Mechanical Engineering 63, 72 and 73; accompanies Mechanical Engineering 61 and 62, and Civil Engineering 35, 45 and 46.

This course continues with the study of the strength of materials, in which are treated beams, columns and shafts; the kinetics of rigid bodies, including moment of inertia of masses, simple, compound, conical and torsional pendulums, centrifugal force and the balancing of machines; work and energy; impulse, momentum and impact; friction and lubrication. *Professors Dukes and Lawrance.*

3. Graphics.—Sem. 2. 0 + 3 (3 M)

Must be preceded by Applied Mechanics 1.

This course includes the graphical determination of stresses in beams, roof and bridge trusses, cranes and similar structures; centers of gravity and moments of inertia by graphics; the graphical statics of mechanism with and without friction. *Professors Dukes and Lawrance.*

ART

Professor Fry in charge.
Professor Fry; Mrs. Fisher.

1-2. Freehand Drawing.—Sem. 1 and 2. 0 + 6 (op. 1 S)
Precedes Art 3 and 4.

This line of instruction includes memory and model drawing in its various phases of expression in different media. The aim is to gain an appreciation of graphic art and to develop individual facility in this direction. *Professor Fry; Mrs. Fisher.*

3-4. The Principles of Color and Design.—Sem. 1 and 2. 2 + 5 (el. S)
Must be preceded by Art 1 and 2.
Precedes Art 5 and 6.

The work in Color includes a study of color as an expression of light, color in the abstract, color analysis, and the various uses of color.

The work in Design includes the recognition of design principles and their application to expression in form, color and arrangement. Especial stress is put upon the relation of color and design to home environment. The work is related to dress, interior house arrangement and the appreciation of the beautiful in the things of everyday life. *Professor Fry; Mrs. Fisher.*

5-6. Teachers' Preparatory Course.—Sem. 1 and 2. 2 + 6 (el. S)
Must be preceded by Art 3 and 4.

The lecture and seminar time is given to the study of Art History, with architecture taken mainly as a basis for criticism. The laboratory time is given to the working out of school problems. In the first semester, a survey is made of the accepted public school courses, and the class considers problems that may be brought into the school room for the teaching of art. This is followed in the second semester by problems in color and design that may be taught through various handicrafts. Especial emphasis is put upon drawing and upon the understanding of color. *Professor Fry.*

BIOLOGY

Professor Coulter in charge.

Professors Coulter, Enders, Terry and Behrens; Assistant Professors Prentice, Toole and Tetrault; Instructor Heimlich; Assistants Kohl and Misses Elkin and Hassenzahl.

1-2. General Biology.—Sem. 1 and 2. 2 + 2 (1 A S P P 1)
Precedes Animal Husbandry 8; Biology 4, 7, 10 to 19, 30 to 43; Materia Medica 10; precedes or accompanies Forestry 1, 2, 3, 4 and 14; Course 1 precedes or accompanies Dairy Husbandry 1.

These courses are designed to furnish a general knowledge of the fundamental facts underlying the biological sciences, such as can be obtained from a thorough study of a series of type forms. Much stress is laid upon the laboratory work, in which the individual work of each student is carefully inspected and checked.
Professor Enders; Mr. Kohl, Misses Elkin and Hassenzahl.

3. Histology of Medicinal Plants.—Sem. 1. 2 + 2 (P 1)

This course includes a study of the microscope—its use and care, a general knowledge of leaf, stem and root structure and such modifications, outgrowth and peculiarities of the above parts as are of consequence in dealing with medicinal plants or identifying them in the form of powdered drugs. *Mr. Heimlich.*

4. Pharmaceutical Botany.—Sem. 2. 2 + 2 (P 1)

This course seeks to acquaint students with the local medicinal plants, their collection and classification. Stress is laid upon botanical terms and usage.
Mr. Heimlich.

5. Sanitary Biology.—Sem. 1 or 2. 1 + 3 (2 Ch, op. 4 C)
Examination of Water and Sewage.

This course includes:

(a) Sanitary Biology with reference to the microscopical examination of drinking water; the determination of organisms, exclusive of bacterial, found commonly in water and sewage; the microscopic analysis of water by the Sedgwick-Rafter method.

(b) Bacteriology of Water and Sewage, including a general study of the bacteria; methods of culture; preparation of culture media; the quantitative and qualitative bacteriological analysis of water and sewage, with the latest methods of detecting sewage bacteria in suspected waters.

(c) Interpretation of analysis of water, including chemical analysis, to give actual practice in passing judgment on certain given results, and to bring out the relation between bacteriological and chemical examination.

Professors Behrens and Tetrault.

7. Sanitary Biology of the Dwelling.—Sem. 1 or 2. 2 + 4 (el. 2 S)

Must be preceded by Biology 1 and 2.
Precedes Home Economics 18.

This course is intended to furnish a foundation of bacteriology and hygiene as applied to the home.

The work begins with the study of the forms of bacteria, their classification, structure, multiplication and reproduction and their chemical products. Experiments illustrating the effect of mould growth, the action of the yeast plant, the presence of germs in air, water and soil, the effect of bacterial growth in various foods, the use of preservatives and methods of disinfection and sterilization, will be performed.

The way in which bacteria cause disease, their attenuation, and the production of immunity; the role insects play in the transmission of diseases; and the sources of infection and the methods of prevention together with the general properties of special micro-organisms, will be carefully expounded. *Professor Tetrault.*

8. Biology and the Public Health.—Sem. 1 or 2. 1 + 5 (el. A & S)

A general course of lectures in Sanitary Science and Hygiene in which will be considered the ancient and modern ideas of disease; the germ theory of disease; the theories of preventive medicine, vaccination and immunity; air, foods and water as carriers of disease; pollution and purification of water supplies; methods of sewage disposal and purification; garbage disposal; epidemics; isolation and quarantine; disinfection and fumigation; hygiene of the home; school sanitation and vital statistics.

Library work on assigned subjects requiring written reports each week.

Professor Behrens.

10-11. Plant Morphology and Physiology. Sem. 1 and 2 2 + 4 (el. A & S)

Must be preceded by Biology 1 and 2.

In the first semester: A study of the structure and function of the higher plant organs—leaf, stem, root, flower. Reports on literature of subject. Field trips.

In the second semester: A systematic study of the lower plant groups, intended to give a fundamental knowledge of plant life and relationships. Reports on literature. Field trips for the study of the local flora. *Mr. Heimlich.*

12-13. Plant Morphology and Histology. Sem. 1 and 2. 2 + 4 (el. A & S)

Must be preceded by Biology 1 and 2.

These courses are intended to give a wider and more detailed knowledge of the methods of investigation and facts concerning the minute structure and development of plants. Special attention will be given to the preparation of sections from the more delicate parts by the paraffin and celloidin processes. Thesis work required.

The work is that covered by Coulter's "Morphology of the Gymnosperms" and Coulter and Chamberlain's "Morphology of the Angiosperms." *Professor Toole.*

14. Plant Pathology.—Sem. 1 or 2. 2 + 4 (el. A & S)

Must be preceded by Biology 1 and 2.

A fundamental course treating of the nature, causes and control of plant diseases. *Professor Toole.*

15-16. Taxonomy.—Sem. 1 and 2. 2 + 4 (el. A & S)

Must be preceded by Biology 1 and 2.

The course embraces a study of the entire plant kingdom, beginning with the simplest forms of vegetable life and proceeding systematically to the most complex flowering types. Special attention is given to the comparative structure of the parts, both organs and tissues, on which the accepted system of classification is based. Where possible a complete study is made of some genus or order. *Professor Coulter.*

17-17a. Plant Physiology.—Sem. 1 and 2. 2 + 4 (el. A & S)

Must be preceded by Biology 1 and 2.

This work considers the principles of absorption, nutrition, relation of plants to environment, growth and reproduction of plants. In the second semester application is made to crop production. A study is made of the influence of environment on plants and the principles of plant breeding. *Professor Toole.*

18. Bacteriology.—Sem. 1. 2 + 4 (2 A 3 P el. S)

Must be preceded by Biology 1 and 2.

Precedes Biology 19, 19a, 61, 62, 69; precedes or accompanies Animal Husbandry 14 and 15.

A course in General Bacteriology introducing the student to the general biology of micro-organisms. The various media are prepared and methods of detection, isolation and identification are applied. The bacteriology of water, milk, and soil and a study of the moulds and yeasts are also included.

Professors Behrens and Tetrault.

19. Bacteriology.—Sem. 2. 2 + 4 (2 A 3 P el. S)

Must be preceded by Biology 1, 2 and 18.

Precedes Biology 61 and 62; precedes or accompanies Animal Husbandry 14 and 15.

This course deals exclusively with pathogenic bacteria and protozoa. The way in which they produce disease, their attenuation, the production of immunity, their sources of infection and the methods of prevention are carefully considered.

Animal inoculation, post-mortem examinations, serum reactions and special staining methods are employed for diagnostic work. *Professor Behrens.*

19a. Soil Bacteriology.—Sem. 1. 2 + 4 (el. A)

Must be preceded by Biology 1, 2 and 18.

Precedes Biology 61, 62 if Biology 19 is not taken.

In this course the soil bacteria and their special application and use in Agriculture will be carefully expounded.

The cultivation of the nitrogen-fixing, the nitrifying and the de-nitrifying organisms will be studied in detail. Plant inoculations, staining in sections, etc., and special research work will be included. *Professor Behrens.*

30-31. Zoology and Comparative Anatomy.—Sem. 2. 2 + 4 (el. A & S)

Must be preceded by Biology 1 and 2.

Precedes Biology 34, 35 and 35a.

In the first semester the student makes careful dissections and drawings of typical forms of most of the groups of invertebrate animals.

The second semester opens with a careful study of the structure of the cartilaginous fishes as representing the primitive vertebrate type. It is the purpose of the course to give the student a clear conception of the vertebrate group as a whole and at the same time to afford a sound basis for the study of Mammalian Anatomy and Physiology. *Professor Enders.*

32-33. Systematic Zoology.—Sem. 1 and 2. 2 + 4 (el. A & S)

Must be preceded by Biology 1 and 2.

A study of the characteristics and relationships of animal groups, together with a study of the habits, life histories and economic value of selected forms. The study of representative species with special reference to the parts employed in classification. Field trips for the study of the local fauna. *Professor Enders.*

34-35-35a. Anatomy.—Sem. 1 and 2 and 1. 2 + 4 (el. A & S)

Must be preceded by Biology 1, 2, 30 and 31.

The course comprises a detailed study of human osteology, arthrology, myology, angiology, and neurology. In osteology, typical bones, numbering about thirty, are modeled in clay. In the other branches sketches of important structures are required, as they are brought to light by dissection. *Professor Terry.*

36. Microscopic Technique and Histology.—Sem. 1. 2 + 4 (el. A P S)

Must be preceded by Biology 1 and 2.
Precedes Biology 37 and 38.

A study of the microscope as an instrument for investigation. Special attention is given to the methods of studying animal histology, injections, hardening of tissues for section cutting, staining and the use of microtome. Each student is required to prepare a series of permanent slides of all the more important tissues of the mammalian body, comparisons being made with human material when this is desirable.

Typical fields are drawn in ink and when advisable water-color tinting is used for details. Each slide is thoroughly discussed in a written report.

Professor Terry.

37. Cytology and Embryology.—Sem. 2. 2 + 4 (el. A P S)

Must be preceded by Biology 1, 2 and 36.

The lectures deal with embryology in general and methods employed, explaining fully each step in the laboratory work.

In the laboratory the processes of fertilization and segmentation are studied from prepared slides. The student is required to prepare serial sections of the embryo of the chick during its first three days' development.

The embryo of the pig is then studied for the further development and differentiation of the tissues, comparison being made with human material when possible.

A series of drawings is required showing the various stages of development.

Professor Terry.

38. Pathology.—Sem. 2. 2 + 4 (el. A & S)

Must be preceded by Biology 1, 2 and 36.

This course consists of a careful laboratory study of the more important tissues in pathological conditions. Students are required to make a fixed number of preparations and to present careful drawings and descriptions of all slides studied. The laboratory work is accompanied by a considerable amount of collateral reading, together with such recitations and lectures as are necessary for the proper elucidation of the subject. *Professor Terry.*

39a-39b. Human Physiology.—Sem. 1 and 2. 3 + 0 (3 S & P)

Must be preceded by Biology 1 and 2.

The course consists of lectures and demonstrations, accompanied by frequent recitations. Although it is designed primarily to give the student a clear understanding of the activities of the human body, special stress is laid on those physiological facts which have direct bearing upon the laws of health.

An essay upon an assigned topic is required during the second semester.

Professor Terry.

40-41. Experimental Animal Physiology. Sem. 1 and 2. 2 + 4 (el. A & S)

Must be preceded by Biology 1 and 2.

The course is a careful laboratory study of the important physiological phenomena and consists of a series of experiments arranged in groups as follows:

Physics of Physiology, two weeks. Physiology of the Blood, three weeks; of Muscle and Nerve, nine weeks; of the Circulation, six weeks; of Secretion and Digestion, five weeks; of Respiration, three weeks; of the Central Nervous System, four weeks; of the Special Senses, four weeks.

The lectures and laboratory work are supplemented by such collateral reading as the proper development of the subject requires. In addition to the course outlined above, students having time at their disposal may undertake original investigations of physiological problems under the guidance of the instructor. *Professor Terry.*

42-43. Advanced Work in Zoology.—Sem. 1 and 2. 2 + 4 (el. S)

Must be preceded by Biology 1 and 2, and at least three lines selected from Biology 30 to 41,

Students selecting these courses will be allowed the greatest freedom of choice as to subject-matter, and encouraged to the greatest possible independence in their work. Such guidance and help will be given as is required to meet this end. None will be permitted to elect the course who have not previously given promise of being able to pursue it with profit. *Professor Enders.*

46. Physiology and Hygiene.—Sem. 1. 3 + 0 (P 1)

Precedes Materia Medica 12.

Lectures, demonstrations and text-book work upon the fundamental principles of the Anatomy, Physiology and Hygiene of the human body. *Professor Terry.*

52-53. Advanced Plant Pathology.—Sem. 1 and 2. 2 + 4 (el. A & S)

Must be preceded by Biology 10 and 14.

This course is for students intending to specialize in plant pathology. It is the purpose of the course to give the student work in isolation and pure culture technique; artificial infection; fixing, imbedding and staining methods. Thesis work is required. *Professor Toole.*

54. Horticultural Pathology.—Sem. 2. 2 + 4 (el. A & S)

Must be preceded by Biology 10.

This course is designed to meet the needs of students specializing in horticulture. The course embraces the study of isolation and pure culture technique; the life histories of the fungi causing disease of truck crops and fruit trees; the fungi affecting fruits in storage; the work of the Federal Horticulture Board; and the Plant Quarantine Laws. *Professor Toole.*

61. Advanced Bacteriology.—Sem. 1. 2 + 4 (el. S & 3 P)

Must be preceded by Biology 18, 19, or 19a.

Precedes Biology 65 and 68.

This course is designed to familiarize the student with the most advanced methods of investigation.

It includes the detection of the various pathogenic organisms in sections, the preparation of special media, the determination of the thermal death-point, the testing of antiseptics and disinfectants, the preparation of tuberculin, diphtheria and tetanus toxins, the preparation of antitoxic and anti-infectious sera, serum reactions, immunization of animals, methods of increasing and decreasing virulence of organisms, the collodium sac method, preparation of Pasteur pipettes, the drawing of blood, collection and sterilization of serum, and the filtration of bacterial fluids.

Special readings will be assigned and conferences held. *Professor Behrens*

62. Pathogenic Protozoa.—Sem. 2. 2 + 4 (el. S & 3 P)

Must be preceded by Biology 18, 19 or 19a and 61.
Precedes Biology 65 and 68.

In this course the various blood parasites such as spirochetes, trypanosomes, hemogregatrines, etc., will be studied in living and stained condition.

Noguchi's method of cultivating spirochetes, the preparation of Novy's blood-agar medium, filtration organisms, and inoculation for rabies will be taken up.

Each student will be required to read up references in English and foreign periodicals. *Professor Behrens.*

65. Bacteriology and Protozoology.—Sem. 1 and 2. 2 + 4 (el. S)

Must be preceded by Biology 61 and 62.

Problems for original research are assigned. *Professor Behrens.*

66-67. Bacteriology.—Sem. 1 and 2. 2 + 0 (P 2)

The subject of Bacteriology in its practical applications is presented in the lectures given in connection with the fuller line of study in Biology 18, 19. *Professor Behrens.*

68. Sero-Reactions; Vaccine Therapy.—Sem. 1 or 2. 2 + 4 (el.)

Must be preceded by Biology 61 and 62.

The work of this course is designed to familiarize the student with the applied methods of bacteriology, with special reference to the preparation of "autogenous" and "stock" bacterial vaccines; antirabic treatment; serum reactions; agglutinins, precipitins, cytolysins, opsonins. Special attention will be given to the identification of blood and the Wassermann reaction for syphilis. *Professor Behrens.*

CHEMICAL ENGINEERING

Professor Peffer.

1-2. Chemical Technology.—Sem. 1 and 2. 2 + 0 (4 Ch el. S)

Must be preceded by Chemistry 5, 6, 7, 8.

The course treats of the practical application of chemical and physical principles to the problems of chemical manufacture, together with the principles of standard types of machinery and apparatus in use in the chemical industries.

Trade catalogues are used as much as possible to familiarize the student with the design and construction of the various types of apparatus. *Professor Peffer.*

3-4. Principles of Metallurgy.—Sem. 1 and 2. 2 + 0 (4 Ch el. S)

A study of the underlying principles of metallurgy as a whole, rather than a detailed description of operations; includes fuels, furnaces, furnace efficiencies, thermo-chemistry, constitution of slags, etc., and the consideration of some of the most important metallurgical processes. *Professor Peffer.*

CHEMISTRY

Professor Evans in charge.

Professors Evans, Mahin, Middleton and Test; Associate Professor Carr; Assistant Professors Anderegg and Nelson; Instructors Foresman, Grubb, Papish, Rudisill; Assistants Bittner, Brown, Kenny and Misses Iddings, Munger, and Robinson.

1-2. General Chemistry.—Sem. 1 and 2. 2 + 3 (1 A S P P 1)

This line of study is taken by students not having had one year of preparation in Chemistry.

1a-2a. General Chemistry.—Sem. 1 and 2. 2 + 3 or 4 (1 A Ch S P P 1) **Advanced Courses.**

Precedes Animal Husbandry 9; Chemistry 3, 4, 29 and 30; Home Economics 11 and 12; and precedes or accompanies Agronomy 22 and Pharmaceutical Chemistry 8.

A general survey of the science of Chemistry from a theoretical rather than descriptive standpoint. The lectures are illustrated by experiments and deal mainly with the non-metallic elements and their compounds and the fundamental theories of the science. Some typical metallic elements are studied during the second semester. The laboratory work follows the lectures closely and is largely quantitative in character.

The advanced course is for students in Chemical Engineering, and for others who have had a year of Chemistry in High School; progress is more rapid, and considerable attention is given to the Chemistry of the metallic elements.

Professors Test and Nelson; Messrs. Grubb, Papish and Brown; Misses Iddings, Munger and Robinson.

3-4. Qualitative Analysis.—Sem. 1 and 2. 2 + 6 (2 Ch & P: el. A & S)

Must be preceded by Chemistry 1, 2 or 1a, 2a.
Precedes Chemistry 5 and 6.

A study of the more common metals and their compounds, based on the periodic law, precedes the study of systematic analysis. The lectures are illustrated by experiments and deal with underlying principles of analysis, particularly the application of the theories of electrolytic dissociation and chemical equilibrium. The simpler equilibrium relations are considered quantitatively and familiarity with the solution of quadratic equations and the use of logarithms is assumed. The laboratory work includes the identification of the common minerals by the methods of blow-pipe analysis.

Professor Middleton; Mr. Kenny.

5-6. Quantitative Analysis.—Sem. 1 and 2. 1 + 6 (3 Ch & P: el. A & S)

Must be preceded by Chemistry 3, 4.

Precedes Chemistry 9, 10, 11, 12, 15, 16, 17, 18, 19, 20; Chemical Engineering 1, 2; Home Economics 16 and 17; precedes or accompanies Chemistry 7, 8; alternative with Pharmaceutical Chemistry 9 as prerequisite for Pharmaceutical Chemistry 13 and 14.

A study of the elements of quantitative analysis both gravimetric and volumetric, including electrolytic methods, and the calibration of weights and volumetric apparatus. Special attention is given to theory and general principles as essentials for accurate work.

The course provides the necessary preparation for later work in applied analysis given in Courses 9, 10.

For students in Agriculture special analytical work may be included:—for students in Agronomy, fertilizers; in Animal Husbandry, feeding stuffs; in Dairy Husbandry, dairy materials. *Professor Mahin; Messrs. Rudisill and Bittner.*

7-8. Organic Chemistry.—Sem. 1 and 2. 3 + 6 (3 Ch: el. A & S)

Must be preceded or accompanied by Chemistry 5 and 6.

Precedes Chemistry 9, 10, 11, 12, 15, 16, 17, 18; and Chemical Engineering 1, 2.

The lectures during both semesters deal with the principal classes of organic compounds, aliphatic and aromatic, with emphasis upon class reactions and structural theory. The laboratory work is chiefly the preparation of typical organic compounds and a study of their properties. The determination of molecular weight and the use of the polarimeter are included. *Professor Evans and Mr. Foresman.*

9-10. Analysis of Industrial Materials.—Sem. 1 and 2. 2+9 (4 Ch: el. S)

Must be preceded by Chemistry 5, 6, 7, 8.

In these courses the lectures deal with the significance of procedure and results in the analysis of coal, gases, iron and steel, oils, cements, foods, fertilizers, water, asphalt, and other industrial materials; also, assaying of gold and silver ores, advanced electro-analysis, metallography of iron and steel, and calorimetry of fuels.

The laboratory work is in the lines already mentioned and others, the student being allowed freedom of choice in the character of his work.

Professor Mahin; Messrs. Rudisill and Bittner.

11-12. Special Chemistry.—Sem. 1 and 2. 2 + 6 (el. A S 4 P)

Must be preceded by Chemistry 5, 6, 7 and 8.

Advanced work of a special character, particularly research.

The course is intended only for those who have shown special ability and industry, and assignment will be made only on the recommendation of the professor concerned and the head of the department.

Professors Evans, Mahin, Middleton, Test, Carr and Anderegg.

15-16. Physical Chemistry.—Sem. 1 and 2. 0 + 6 (el. S)

Must be preceded or accompanied by Chemistry 17 and 18.

A laboratory course whose purpose is to verify the laws considered in Chemistry 17 and 18 and to afford practice in physico-chemical measurements.

Professor Anderegg.

17-18. Theoretical Physical Chemistry. Sem. 1 and 2. 3 + 0 (4 Ch: el. S & P)

Must be preceded by Chemistry 5, 6 and 7, 8, and Mathematics 13 and 14.

Alternative with Chemistry 15, 16, to precede or accompany 17a, 18a.

The lectures deal with the constitution of matter, the general properties of gases, liquids and solids, the phenomena of solutions, and the special topics of colloids, electrochemistry, thermochemistry, chemical statics and dynamics, photochemistry and the phase rule. *Professor Anderegg.*

19-20. Agricultural Analysis.—Sem. 1 and 2. 2 + 4 (el. S & 4 A)

Must be preceded by Chemistry 5 and 6.

These courses offer a training in the principles and practice of quantitative analysis of soils, fertilizers, feeding stuffs, milk, water, and other materials related to Agriculture. They are especially designed for students who wish to specialize in agricultural chemistry, either in the field or in the laboratory. *Professor Carr.*

21a. General Chemistry.—Sem. 1. 2 + 4 (2 C E M)

Precedes Chemistry 22.

This course consists of illustrated lectures and laboratory work designed to give the student the chemical foundation necessary for the proper understanding of the industrial chemistry which is taken up during the second semester in course 22. The fundamental principles of the subject and the chemistry of the more important non-metallic elements and their compounds are studied.

Professors Test and Nelson; Messrs. Grubb and Papish.

22. Applied Chemistry.—Sem. 2. 2 + 0 (2 C E M)

Must be preceded by Chemistry 21a.

A course of lectures dealing in an elementary way with the chemistry of some of the more important industrial materials and their applications to engineering problems. Among the topics discussed are waters, fuels, cements, clay products, paving materials and explosives, electric batteries and insulating materials.

Professors Test and Nelson.

29-30. Theoretical Organic and Physiological Chemistry. Sem. 1. 3 + 0 (2 A: el. S)

Must be preceded by Chemistry 1 and 2.

This course is intended for students desiring a theoretical knowledge of organic and physiological chemistry. It includes the consideration of organic class reactions and structural theory, and the chemistry of the body and food constituents and digestion. *Professor Evans.*

CIVIL ENGINEERING

*Prof. Hatt in charge**

Professor Hatt; Associate Professors Wiley†, Albright, Kesner and Yeoman; Assistant Professors Greve and Lommel; Instructor Crepps.*

1. **Surveying—Plane Surveying.**—Sem. 1. 3 + 6 (2 C)

Must be preceded by Mathematics 1.
Precedes Civil Engineering 2.

Recitations, lectures, field and office work in the theory and practice of plane surveying. A strict standard is enforced in the form and style of the student's field record and office calculations. *Professors Albright and Lommel.*

2. **Surveying—Topographical.**—Sem. 2. 0 + 9 (2 C)

Must be preceded by Civil Engineering 1.
Precedes Civil Engineering 3 and 5.

A study of theory and use of the stadia, plane table and other instruments employed in topographical surveys, with sufficient practice in preparation for the more advanced work of the summer camp. Study and practice in Railway Curves.

Professors Albright and Lommel.

3. **Surveying—Higher Surveying.**—Sem. 1. 2 + 4 or 1 + 7 (3 C)

Must be preceded by Civil Engineering 2 and 5.

Practical astronomy and geodetic surveying. Determination of azimuth, latitude, longitude, and time. Field work in base-line measurement and precise triangulation; mine surveying; precise city surveying; hydrographic surveying; practice in computation of data obtained in Civil Engineering 5.

Professors Albright and Lommel.

4. **Surveying.**—Sem. 1. 0 + 2 (2 Ch)

Must be preceded by Mathematics 1.

Recitation and field practice in elementary surveying.

Professors Albright and Lommel.

5. **Civil Engineering Camp.**—Six weeks following second semester.

One recitation and eight field hours per day. Required of Sophomores in Civil Engineering.
Must be preceded by Civil Engineering 2.
Precedes Civil Engineering 3.

The engineering camp is held at a location remote from the University, selected to furnish a variety of topographical conditions. The work of the camp will be conducted as closely as possible in accordance with the conditions of practice.

The activities of the camp include: The establishment of a triangulation system; base-line measurement, and determination of angles by precise methods, astronomical observations; precise leveling; these data to be used in Higher Surveying 3.

An accurate topographic and hydrographic survey by transit and stadia and by plane table and stadia is made of the area covered by the triangulation system. Practice includes the survey of a railroad location including reconnaissance, preliminary survey and final location. The necessary maps and profiles are completed at the camp. The final location offers practice in staking out various kinds of curves, setting slope stakes, and estimating quantities.

Professors Albright and Lommel and Assistants.

6. **Highway Engineering.**—Sem. 1. 1 + 3 (op. 4 C)

Road surveys; economics of highway location; drainage; construction and maintenance of earth, gravel and stone roads; road oils and tars; testing road materials.

Professor Albright.

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* Absent on leave January to September, 1919.

† In charge January to September, 1919.

7. Highway Engineering.—Sem. 2. 1 + 3 (op. 4 C)

A study of the highway legislation and finance of various states. Design and construction of brick, concrete, asphalt and treated block roads; repairs; organization; patrol system; testing road materials. *Professor Albright.*

11. Railway Engineering.—Sem. 1. 1 + 3 (op. 4 C)

Economic principles of railway location, revision and improvements; lectures, problems in the analysis of locomotive data with reference to virtual or operating profiles, the revision of grade lines, economic estimates. *Professor Albright.*

12. Railway Engineering.—Sem. 2. 1 + 3 (op. 4 C)

A study in the principles and practice of Railway Signals. Lectures upon the valuation of properties. *Professor Albright.*

17. Railroads.—Sem. 2. 2 + 3 (3 C)

Lectures, recitations, office and field work, visits of inspection, design, cross-sectioning, calculation of quantities, cost data, monthly and final estimates.
Professors Albright and Lommel.

21. Stresses.—Sem. 1. 4 + 4 (3 C)

Must be accompanied by Applied Mechanics 1.
Precedes Civil Engineering 23, 27, 29, 33 and 34.

The algebraic and graphical methods of determination of reactions, moments and shears in beams and trusses; the stresses in bridge and roof trusses under static and dynamic loads. *Professor Kesner.*

23. Theory of Structures.—Sem. 1. 3 + 0 (4 C)

Must be preceded by Civil Engineering 21.

The analysis of continuous, draw, cantilever and suspension bridges and arch ribs of metal; theories of deflection, resilience, and least work with applications to structures. *Professor Kesner.*

27. Structural Engineering.—Sem. 1. 1 + 3 (op. 4 C)

Must be preceded by Civil Engineering 21.

The design of steel office building frames; the coordination of engineering and architectural requirements; business relations of the structural engineer.
Professor Kesner.

28. Structural Engineering.—Sem. 2. 1 + 3 (op. 4 C)

Selected topics in structural engineering. Discussion of recent notable structures. Historical notes on eminent designers and constructors and their works. The literature of structural engineering. *Professor Kesner.*

29. Bridge Design.—Sem. 2. 2 + 6 (4 C)

Must be preceded by Civil Engineering 21.

Detailing, designing and checking of plate girders, mill buildings, highway and railway bridge trusses. Lectures cover shop processes, economical and aesthetic design, maintenance and specifications. *Professor Kesner.*

31. Testing Materials.—Sem. 1 or 2. 0 + 2 (3 Ch E M)

Must be preceded or accompanied by Applied Mechanics 1.

This course is designed to give the student a less extended knowledge of the strength of materials than that provided for in Testing Materials 35. The nature and scope of the course are sufficiently indicated by the description of Course 35.
Mr. Crepps.

33-34. Masonry; Reinforced Concrete Construction. Sem. 1 and 2. 2 + 4 (4 C)

Must be preceded by Applied Mechanics 1 and Civil Engineering 21.

Building materials; estimates and specifications for their use in engineering structures; principles governing the design of foundations, retaining walls, piers, abutments, culverts and arches; reports on existing masonry structures; the design of masonry structures, the principles and practice of reinforced concrete construction. *Professors Hatt and Wiley.*

35. Testing Materials.—Sem. 2. 1 + 6 (3 C)

Must be accompanied by Applied Mechanics 2.

Precedes Civil Engineering 36.

This course is designed to give the student an experimental knowledge of the character of normal and defective materials, and of the methods and instruments used in determination of the mechanical properties of structural materials. Theoretical laws are verified, and results discussed and interpreted. Tests are made in tension, compression, torsion and flexure, upon such materials as iron, steel, timber, stone, cement, cement-mortars and concrete. Suitable tests are also made on manufactured pieces, such as wire rope, textiles, paving brick, car bolsters, and brake beams. Provision is made for tests under both impact and gradual loading. *Mr. Crepps.*

36. Concrete.—Sem. 1. 2 + 0 (op. 4 C)

Must be preceded by Testing Materials 35 and Applied Mechanics 1.

Precedes Civil Engineering 37.

A study of the properties of concrete, of concrete materials and reinforced concrete. Library research and reports. *Professor Hatt.*

37. Reinforced Concrete Bridges.—Sem. 2. 2 + 0 (op. 4 C)

Must be preceded by Civil Engineering 36.

A study of the development of reinforced concrete bridges and the design of modern types. *Professor Hatt.*

38. Roads and Pavements.—Sem. 2. 2 + 0 (3 C)

The location, construction and maintenance of roads and streets; designs and estimates of cost; methods of assessment; field practice in establishing grades; inspection of types of street improvement. *Professor Lommel.*

41. Hydraulics.—Sem. 1. 3 + 0 (4 M: op. 4 E)

Must be preceded by Applied Mechanics 1.

Accompanies Civil Engineering 49.

Hydrostatic pressure; the law governing the action of fluids in motion; the flow of water through orifices, pipes, open channels, and over weirs; the measurement of flow; losses of head due to frictional and other resistances; the efficiency of dynamic pressure of jets; theory of hydraulic motors. *Professor Greve.*

43. Hydraulic Engineering—Water Power.—Sem. 1. 1 + 3 (op. 4 C)

Must be preceded by Civil Engineering 45, and accompanied by 47.

Precedes Civil Engineering 44.

A course in rainfall, run-off, stream gauging; auxiliary power; storage, evaporation and seepage; the design of dams, headgates, and flumes; efficiency of plant from water to power consumer; river and harbor improvements; inland waterways. *Professor Greve.*

44. Hydraulic Power Plants.—Sem. 2. 1 + 3 (op. 4 C)

Must be preceded by Civil Engineering 43.

A study of turbines, including tests for efficiency; the design of a power plant; details of equipment, transmission of power, estimates of cost, maintenance and probable income. *Professor Greve.*

45. Hydraulics.—Sem. 2. 3 + 0 (3 C)

Must be accompanied by Applied Mechanics 2.

Precedes Civil Engineering 43 and accompanies 48.

Hydrostatics: the pressure on dams and gates; buoyancy.

Hydro-dynamics: the flow through orifices, short tubes, pipes, open channels, and over weirs; friction; study of the theory of impulse wheels, turbines and centrifugal pumps. *Professors Wiley and Greve.*

48. Hydraulic Laboratory.—Sem. 2. 0 + 4 (3 C)

Must be accompanied by Hydraulics 45.

Precedes Civil Engineering 47.

Experiments on the flow through orifices, short tubes, pipes, weirs, water meters; the current meter, Venturi meter; pumps and motors. *Professor Greve.*

49. Hydraulic Laboratory.—Sem. 1 or 2. 0 + 3 (4 M: op. 4 E)

Must be accompanied by Hydraulics 41.

Experiments with orifices, tubes, pipes, weirs, meters, pumping machinery and hydraulic power. Calibration. Efficiency. *Professor Greve.*

54. Sanitary Engineering.—Sem. 2. 1 + 3 (op. 4 C)

Must be preceded by Civil Engineering 59.

An advanced course in the design of water purification works, sewage and garbage disposal plants, water-works management. *Professor Wiley.*

56. Engineering Contracts.—Sem. 2. 2 + 0 (4 C)

A study of the law of contracts and specifications as applied to engineering work, and of the finance of construction work. *Professor Wiley.*

59. Municipal Engineering.—Sem. 1. 3 + 4 (4 C)

Must be preceded by Civil Engineering 45.

Precedes Civil Engineering 54.

(a) Water supply; the design and construction of water works, including a study of the various sources of supply, methods of collection and distribution; quantity; quality; followed by

(b) Sewerage; design and construction of storm, sanitary and combined systems of sewers, including study of run-offs, the laws of flow, surveys, plans, capacities, materials, and methods of construction, specifications and estimates of costs.

Professor Wiley.

DAIRY HUSBANDRY

Professor Reed in charge.

Professor Reed; Associate Professor Carr; Assistant Professor Gregory; Instructors Fairchild and Lochry.

1. Milk; Production, Composition and Uses.—Sem. 1 or 2. 2 + 2 (2 A)

Must be preceded or accompanied by Biology 1.

Precedes Dairy Husbandry 2, 3, 4, 5, 6, 7 and 8 and Biology 69.

A brief general survey of the field of dairying and its relation to Indiana Agriculture. The secretion, composition and properties of milk; the influence of breed, period of lactation, age, feed and care of cows on quantity and quality of milk; the Babcock test and the lactometer; methods of creaming; the farm separator; milk fermentation; the care of milk and the making of butter and cheese on the farm, and other topics relating to farm dairying. Laboratory work gives training in the use of the Babcock test, the lactometer, the cream separator, and the making of butter and cheese. *Mr. Fairchild.*

2. Creamery Butter Making.—Sem. 2. 2 + 4 (el. 3 A)

Must be preceded by Dairy Husbandry 1.

Theory and practice of factory buttermaking; sampling and grading milk and cream; power separators and pasteurizers; starters; cream ripening; acid tests; churning and preparing butter for market; butter scoring. Laboratory work consists of the operation of churns, pasteurizers, and the making of butter.

Professor Gregory.

3. Testing of Dairy Products.—Sem. 1. 2 + 4 (el. 3 A)

Must be preceded by Dairy Husbandry 1.

Commercial methods of determining fat, salt and moisture, acidity, and total solids and solids-not-fat in milk and its products; standardization of milk and cream; detection of adulterants and preservatives. Laboratory work gives practice in the above tests and relates them to problems as found in a commercial or public health laboratory. *Professor Gregory.*

4. Production and Marketing of Milk.—Sem. 1. 2 + 4 (el. 4 A)

Must be preceded by Dairy Husbandry 1 and preceded or accompanied by Dairy Husbandry 9.

A study of feeding standards; dairy cow and calf feeding; transportation and delivery of milk, receiving, pasteurizing, bottling and grading milk; milk plant equipment; value of milk and dairy products as food; Federal, State and City standards. Laboratory work in compounding rations, designing city milk plants, advertising, accounting systems, and the planning of collection and delivery routes.

Professor Reed.

5. Milk Products.—Sem. 2. 2 + 2 (el. 3 A)

Must be preceded by Dairy Husbandry 1.

(a) First half of semester. CONDENSED MILK AND MILK POWDER: Condensed Milk factories and their milk supply; condensing in vacuo; sweetened condensed and plain condensed bulk milk, evaporated milk; concentrated milk; condensed buttermilk; powders from whole milk, skim milk, and buttermilk; condensed milk defects, standard and markets.

(b) Second half of semester. ICE-CREAM AND FROZEN PRODUCTS: Equipment of ice-cream factories; refrigeration; preparation of ice-cream mix; factors influencing freezing; the swell and the quality of the finished product; ice-cream recipes; marketing.

Laboratory work of the first half of the semester consists of library assignments on condensed milk and milk powder, and an examination of condensed goods. The second half is given to practice in manufacturing ice-cream and ices.

Professor Gregory.

6. History and Breeding of Dairy Cattle.—Sem. 1. 2 + 2 (el. 3 A)

The origin, value and classification of the different dairy breeds; distribution of dairy breeds in Europe and America; advanced registry associations; pedigree studies Laboratory work in judging dairy stock and in tracing pedigrees. *Professor Reed.*

7. Care and Management of Dairy Cattle.—Sem. 2. 2 + 2 (el. 3 A)

Developing the dairy herd; herd records; co-operative cow testing and breeding associations; dairy barns and dairy farm equipment; cost accounting; feeding animals for exhibit; advertising stock; advanced registry. Laboratory work in designing dairy farm buildings and farm layouts. *Professor Reed.*

8. Milk Production.—Sem. 2. 2 + 2 (el. 4 A)

The history and distribution of dairy breeds and their adaptation to the United States; selecting high producing cows; the dairy calf and the growing of dairy heifers; rations for dairy cows; home-grown feeds and their relation to profitable dairying; the herd bull; the arrangement and management of the dairy farm.

Mr. Fairchild.

9. Dairy Bacteriology.—Sem. 2. 2 + 2 (el. 4 A)

Must be preceded by Biology 18 and Dairy Husbandry 1.

Precedes or accompanies Dairy Husbandry 4.

Sources of bacterial contamination of milk; bacteria of raw and pasteurized milk; the significance of bacteria in milk products; laws relating to the bacterial content of milk and its products; equipment and methods used in commercial and public health laboratories. Laboratory work in determining bacterial contamination of milk and milk products and the study of the efficiency of methods of cleaning dairy utensils and apparatus, and the efficiency of pasteurization; practice in handling starters and fermented milk cultures; methods used in commercial and public health laboratories.

Professor ——————

10. Creamery Mechanics.—Sem. 1. 2 + 2 (el. 3 A)

The study of pasteurizers, boilers, steam engines, water heaters, pumps, refrigerating machinery, etc., in their economy and application to dairy manufacturing. Laboratory work in the operation of the various types of machinery.

Professor Gregory.

11. Cheese Manufacture.—Sem. 1. 1 + 4 (el. 4 A)

The manufacture of cheddar, brick, cottage, Neufchatel, and other fancy cheeses; the effect of milk on cheese; ferments, marketing; factory management; co-operative organizations. Laboratory work in the manufacturing of the various types of cheese and caring for the same in storage; practice in judging and scoring.

Professor Gregory.

12. Dairy Chemistry.—Sem. 1. 2 + 4 (el. 4 A)

A study of the chemistry of milk and its products; feeding and its effect upon the composition of milk; chemical changes involved in butter and cheese manufacture, together with factors affecting their composition; the subject will be treated from the standpoint of biological chemistry. *Professor Carr.*

13. Dairy Survey.—Sem. 2. 2 + 4 (el. 4 A)

(a) For students specializing in dairy manufacturing:

Cost of producing milk; breeds of dairy cattle; the pure-bred bull; co-operative organizations; construction of dairy farm buildings. Laboratory work in judging dairy stock and designing dairy farm buildings.

(b) For students specializing in Dairy Production:

The manufacture of butter and cheese on the specialized dairy farm; problems of the manufacturer; methods of marketing dairy products; the value of quality in the manufactured article; co-operation between producers and manufacturer; the importance of a substantial market. Laboratory work in manufacturing operations applicable to farming conditions relating to milk, butter and cheese.

Professors Reed and Gregory.

14. Advanced Manufacturing.—Sem. 2. 1 + 4 (el. 4 A)

Technical problems relating to the manufacture of dairy products; methods of experimentation. In the laboratory students may work along a chosen line of dairy manufacturing. Complete outlines and reports are required of all assignments.

Professor Gregory.

ECONOMICS

Professor Moran in charge.
Associate Professor Estey; Instructor Smith.

1. Elementary Economics.—Sem. 2. 3 + 0 (3 E & M: 4 Ch & C)

A general survey of the principles of Economics.

Professor Estey and Mr. Smith.

11-12. Principles of Economics.—Sem. 1 and 2. 3 + 0 (4 A S & P)

A detailed study of the entire field of general Economics. Production of wealth; business organization; value and price; money and banking; trade and commerce; distribution; labor problems; socialism; transportation; insurance; and public finance.

Professor Estey and Mr. Smith.

13. Money and Banking.—Sem. 1 3 + 0 (el. 4 A S & M: op. 4 E)

Problems of coinage and note issues, the national banking and federal reserve systems, foreign exchange, and the banking systems of the leading industrial countries.

Professor Estey.

14. Transportation Economics.—Sem. 2. 3 + 0 (el. 4 A S & M: op. 4 E)

Economic problems of rail and water transportation. Railroad organization and finance, rates, government control and ownership; shipping; waterways and canals.

Professor Estey.

15. Corporation Finance.—Sem. 1. 3 + 0 (el. 4 A S & M: op. 4 E)

A detailed study of the organization, financing and management of corporations.

Professor Estey.

16. Labor Problems.—Sem. 2. 3 + 0 (el. 4 A S & M: op. 4 E)

Wages; employment; methods and policies of organized labor; labor legislation.

Professor Estey.

21. Sociology.—Sem. 1 or 2. 3 + 0 (el. 4 A S P)

The general principles of social science. *Professor Estey.*

EDUCATION

Professor Roberts, in charge

Professor Roberts; Associate Professors Cromer, Brandenburg and Hall; Assistant Professor Tilson, with Superintendent Burtsfield co-operating.

The courses offered in this department are open to students, beginning with their sophomore year, in connection with the regular lines of undergraduate work. In order to secure the teacher's eligibility certificate for class "C" in Indiana, three years of professional work must be satisfactorily completed, viz., courses 1, 2, 3, 4, and 9, 10 with their accompanying Special Methods and Supervised Teaching courses in the major subject.

In general, students will elect the courses in the order given above. For special reason, they may, with the approval of the head of this department, elect some of the courses out of this order, but for eligibility to class "C" all of the courses above indicated must be satisfactorily completed.

The work of this department is intended to provide training such as will make students in the regular and technical courses of this institution eligible to teach and supervise special technical, and vocational subjects in the public schools and vocational schools of Indiana. This preparation is the co-operative work of the several departments of the University. In Education, the special field of this institution is the professional preparation for teaching agriculture, home economics, industrial arts, and natural sciences.

The work of the department of Education has been regularly approved by the State Board of Education, and Purdue University has been accredited as a Standard College for the preparation of teachers in accordance with the provisions of the Indiana School Law and the regulations of the State Board of Education.

1. General Psychology.—Sem. 1. 3 + 0 (el. 2 S 3 A P)

An introduction to the study of the normal adult mind including demonstrations and elementary experiments illustrative of the physiological basis of mental states.

Professor Brandenburg.

2. Educational Psychology.—Sem. 2. 3 + 0 (el. 2 S 3 A P)

Must be preceded by Education 1.

The course is designed to familiarize the student with the relationships between elemental human traits and tendencies and educational procedure. The application of psychological principles to the teaching of vocational education is emphasized. Much consideration is given to instinctive tendencies, habit formation, memory, the learning process, affective life and thought processes.

Professor Brandenburg.

3. History of General and Vocational Education.—Sem. 1. 3 + 0 (el.)

This course involves the study of the development of various conceptions of educational values; the development of educational theory and practice; and the development of educational problems and methods in relation to the growth and establishment of vocational education in the United States and foreign countries. Special emphasis also is placed upon the problems of vocational education as presented by recent State and Federal legislation.

(a) Vocational agricultural education. *Professor Cromer.*
(b) Vocational home economics education. *Professor Tilson.*
(c) Vocational industries and trades education. *Professor* ————

4. Principles and Methods of Teaching.—Sem. 2. 3 + 0 (el.)

This course involves the discussion of the technique of teaching, aiming to make more logical and more scientific the thought about teaching. A careful study is made of the fundamental principles which underlie classroom instruction and management and the problems of teaching. The principles and methods which are involved in the successful teaching of agriculture, home economics, and industrial arts in secondary and vocational schools are given particular attention. Observation of actual teaching with detailed reports and classroom discussion is included.

(a) Vocational agricultural education. *Professor Cromer.*
(b) Vocational home economics education. *Professor Tilson.*
(c) Vocational industries and trades education. *Professor* ————

7. Applied Psychology.—Sem. 1 or 2. 3 + 0 (op. 4 E M)

The purpose of this course is to assist the student in obtaining a more complete and accurate understanding of human nature. The elementary facts, laws, and principles of psychology with specific applications to industrial conditions are considered. Some attention is given to the different plans of rating and testing men.

Professors Roberts and Brandenburg.

8. Mental and Educational Measurements.—Sem. 2. 3 + 0 (el. 4)

Must be preceded either by Education 1 or 7.

This course deals with the principles, methods and applications of various types of scales for measuring general mental ability and educational achievement. It includes a brief survey of elementary statistical methods essential to an understanding of testing. Sufficient practice in giving tests is provided to give the student an appreciation of psychological methods of procedure.

Professors Brandenburg and Roberts.

9. Child Study and Elementary School Management. Sem. 1. 2 + 0 (el.)

Precedes or accompanies Education 11, 13, 15, 17.

This course deals with the child and its relation to the school organization and to school management. It considers community educational resources and includes the discussion of the observation and practice teaching work. *Professor Roberts.*

10. Secondary and Vocational School Management. Sem. 2. 2 + 0 (el.)

Precedes or accompanies Education 12, 14, 16, 18.

This course gives consideration to the characteristics of youth and their relation and application to the work of secondary and vocational schools, together with discussion of the observation and supervised teaching work. *Professor Roberts.*

11-12. Special Methods and Supervised Teaching in Agriculture. Sem. 1 and 2. 2 + 2 (el.)

Must be preceded or accompanied by Education 9 and 10.

This course aims to give a thorough knowledge of the course in agriculture and its proper correlation with other subjects in the curriculum. Special study is made of courses in agriculture for the high school, the vocational department, and vocational schools. Model courses are constructed with plans for all equipment, including cost of same, for laboratory, library and field work. Lesson plans and model lessons are required. A careful study is made of practical extension methods and the organization of special courses of study in agriculture for night schools, farmers' clubs, and boys' clubs.

This course also includes actual teaching practice in agriculture under the direct supervision of the professor of agricultural education. *Professor Cromer.*

13-14. Special Methods and Supervised Teaching in Home Economics. Sem. 1 and 2. 2 + 2 (el.)

Must be preceded or accompanied by Education 9 and 10.

This course aims to give a thorough knowledge of the course in home economics and its proper correlation with the other subjects in the curriculum. Special study is made of courses in home economics for the high school, the vocational department, and vocational schools. Model courses are constructed with plans for all equipment, including cost of same, for laboratory, library, etc. Lesson plans and model lessons are required. A careful study is made of practical extension and demonstration methods and the organization of special courses in home economics for night schools, women's clubs and girls' clubs.

This course involves actual teaching practice in home economics under the direct supervision of the professor of home economics education. *Professor Tilson.*

15-16. Special Methods and Supervised Teaching in Industries and Trades. 2 + 2 (el.)

Must be preceded or accompanied by Education 9 and 10.

Special study of courses in industries and trades for the high school, the vocational department, and vocational schools is made. Model courses are constructed with plans for all equipment, including cost of same, for laboratory, shops and library. Lesson plans and model lessons are required. A careful study is made of practical methods and the organization of special courses for night schools, part-time schools and continuation schools.

This course involves actual teaching practice under the direct supervision of the professor of industries and trades education.

17-18. Special Methods in High School Subjects. Sem. 1 and 2. 2 + 2 (el.)

Must be preceded or accompanied by Education 9 and 10.

A careful study of the methods and literature relating to the teaching of the special subject elected; outlining a course of study in this subject; observation and supervised teaching; and consideration of equipment required.

Professor Roberts.

19. Elements of Educational Sociology. Sem. 1 or 2. 3 + 0 (el. 3 or 4)

This is a preliminary course designed to prepare students (1) either for the course in Rural Life (Education 20), or (2) for the course in Industrial Community (Education 21). The course deals with the fundamental laws and principles underlying human relations. *Professor Hall.*

20. Rural Life.—Sem. 2. 3 + 0 (el. 3 or 4 A & S)

Must be preceded by Education 19.

This course deals with the problems of rural life. The past development, the present tendencies, and the future growth are studied. It includes a somewhat comprehensive consideration of the improvement of agricultural production, the business of farming, the home, marketing, rural health and sanitation, etc., always attempting to give the subject a sociological bearing. *Professor Hall.*

21. Industrial Community.—Sem. 2. 3 + 0 (el. 3 or 4 C E M S)

Must be preceded by Education 19.

This course considers the application of the general principles of sociology to the community life of the industrial worker. Its aim is to give to those who are training for the industries a better conception of the social relations in such communities and to assist in setting up standards for bettering the social conditions in industrial life generally. *Professor Hall.*

ELECTRICAL ENGINEERING

Professor Harding in charge.

Professors Harding, Topping and Still; Associate Professor Ewing; Assistant Professor Achatz; Instructors Emrick, Piper, Curtner and Blalock; Assistant Pugh.

5. Electrical Engineering.—Sem. 1. 5 + 3 (3 E)

6. Electrical Engineering.—Sem. 2. 6 + 3 (3 E)

Must be preceded by Mathematics 3 and 4, and Physics 1 and 2.

Precedes Electrical Engineering 7, 8, 12, 23, 36, 43, 61, 74 and 81. Course 5 also precedes 22, and course 6 accompanies 22.

This line of study covers the fundamental theory of the magnetic, electric and electro-static circuits and its application to direct current machinery. It is distinctly the basis for the specialized courses of the Senior year.

Professor Topping and Mr. Pugh.

7. Electrical Engineering.—Sem. 1. 5 + 3 (4 E)

8. Electrical Engineering.—Sem. 2. 1 + 2 (4 E)

Must be preceded by Electrical Engineering 5 and 6.

Accompanies Electrical Engineering 23.

This line of study comprises a variety of engineering problems.

Professors Harding and Ewing.

9-10. Electrical Engineering.—Sem. 1 and 2. 3 + 3 (4 Ch)

Must be preceded by Mathematics 3 and 4 and Physics 1, 2 and 6a.

This line of study covers the theory and operation of continuous and alternating current machines and apparatus, giving special attention to industrial applications of the electrical equipment studied. Study is also made of transmission systems, factory illumination, and of the construction and care of storage batteries.

Mr. Blalock.

12. Electrical Laboratory.—Sem. 2. 0 + 6 (4 E)

Must be preceded by Electrical Engineering 5, 6 and 7.

This line of study covers practical testing of dynamos, motors, transformers, incandescent lamps, arc lamps and other forms of electrical apparatus. Experiments with alternating currents in circuits containing capacity and self-induction form a part of the line of study. *Professor Achatz; Messrs. Piper, Curtner, Blalock and Pugh.*

19-20. Electrical Engineering.—Sem. 1 and 2. 3 + 2 (3 M)

Replaces courses 1, 2 and 17, 18, after 1917-18.

Must be preceded by Mathematics 3 and 4 and Physics 1a and 2a.

This line of study covers the theory and operation of continuous and alternating current machines and apparatus, giving special attention to industrial applications of the electrical equipment studied. *Messrs. Emrick and Blalock.*

22. Electrical Design.—Sem. 2. 0 + 3 (3 E)

Must be preceded by Electrical Engineering 5 and accompanied by 6.

This course treats of the principles of electro-magnetism and illustrates their practical application in the design of electro-magnets and electro-magnetic mechanisms. The use of approximate and "rule-of-thumb" methods is avoided, each design being worked out by the intelligent application of the fundamental principles of Physics. The student is expected to make all necessary calculations and produce a finished drawing of:

(1) a horse-shoe type electro-magnet.
(2) a circular lifting magnet, or a magnetic clutch.
(3) a solenoid or plunger-type electro-magnet.

Professor Still and Mr. Piper.

23. Electrical Design.—Sem. 1. 1 + 6 (4 E)

Must be preceded by Electrical Engineering 5 and 6 and accompanied by 7.

This course covers the application of the fundamental theory of electro-magnetic machinery to the calculation and design of alternating current generators and transformers. The lecture and recitation period covers the theory of the magnetic and dielectric circuits. The student is expected to design:

(1) a three-phase A. C. generator of either the salient-pole slow-speed type, or the steam-turbine driven high-speed type with cylindrical field magnet.

(2) a high-voltage alternating-current transformer, paying special attention to the problems of insulation. *Professor Still and Mr. Piper.*

24. Electrical Design.—Sem. 2. 0 + 6 (op. 4 E)

This course is a continuation of Electrical Design 23, with special reference to problems connected with continuous current machinery, including commutation and interpole designs. Students are required to make all necessary calculations in connection with the design of a D. C. generator, motor generator, or synchronous converter. Opportunity is afforded for the design of an over-head electric power transmission system. Other designs, involving the application of the fundamental principles of electrical engineering, are also considered when time permits.

Professor Still and Mr. Piper.

36. Electrical Railway Engineering.—Sem. 2. 3 + 0 (op. 4 E)

Must be preceded by Electrical Engineering 5 and 6.

This course deals with the engineering preliminaries incidental to the construction of new railways and extensions of old ones, the laws of traffic movement, fundamentals of train haulage, performance of electric railway equipment and the application of such equipment to practical problems in the urban, interurban and heavy electric traction fields. *Professor Ewing.*

39. Electrical Engineering.—Sem. 1. 3 + 3 (4 C)

Replaces courses 34 and 14, after 1917-18.

Must be preceded by Mathematics 3 and 4, and Physics 1a and 2a.

The aim of this course is to give the student a perspective of the broad field of electrical engineering and to acquaint him in some detail with those phases of the subject with which a civil engineer is most likely to come into contact. The course includes a brief study of the fundamentals of electrical circuits, the operation and application of electrical machinery and other devices. The laboratory work is so coordinated with the class work as to illustrate in a practical manner the theory studied in the class room. *Professor Achatz.*

43. Telephone Engineering.—Sem. 2. 3 + 0 (op. 4 E)

Must be preceded by Electrical Engineering 5 and 6.

This course covers the fundamental principles of the telephone, including signalling, transmission, local battery, central battery, and automatic switchboards, trunking systems and power apparatus. Engineering and economic considerations involved in plant layout and construction as well as in operation, are emphasized.

Professor Achatz.

45. Wireless Telegraphy.—Sem. 1. 3 + 0 (op. 4 E)

This course covers the fundamental principles of Radio-Telegraphy and Radio-Telephony, together with a study of the construction and operation of Radio apparatus.

Professor Achatz.

61. Illuminating Engineering.—Sem. 2. 3 + 0 (op. 4 E)

Must be preceded by Electrical Engineering 5 and 6.

This course is intended to give a fundamental training in illuminating engineering for those desiring to specialize in this branch. It includes the study of the units of illumination, standards of light, photometric methods, electric and gas illuminants, shades and reflectors, calculations of illumination and the proper selection and arrangement of illuminants for interior and street lighting. *Professor Topping.*

73. Corporate Organizations.—Sem. 2. 3 + 0 (4 E)

This line of study covers the organization and functions of public service corporations, together with the regulation of corporations by state and federal commissions. It includes many problems of particular value to students expecting to enter commercial or executive positions. *Professor Harding.*

74. Power Transmission and Distribution.—Sem. 1. 3 + 0 (op. 4 E)

Must be preceded by Electrical Engineering 5 and 6.

This course covers the subjects of wires and cables, line insulation, line supports, underground structures, direct and alternating current distribution, high-voltage lines, inductive disturbances and line protection. The students are required to solve numerous problems dealing with the design and operation of electric lines.

Professor Ewing.

81. Analytical Electrical Engineering.—Sem. 1. 3 + 0 (op. 4 E)

Must be preceded by Electrical Engineering 5 and 6.

This course is intended to give training in the methods of attack and the mathematical analysis of certain problems in Electrical Engineering.

It includes vector analysis, wave-form analysis, and a mathematical study of oscillations and allied phenomena in electric circuits. *Professor Topping.*

91. Electrical Engineering Seminar.—Sem. 2. 1 + 0 (2 E)

A series of lectures and round-table conferences comprise this course. Its purpose is to acquaint engineering students at an early period in their career with the history, biography and broad possibilities of the electrical engineering profession.

Mr. Curtner.

92. Electrical Engineering Seminar.—Sem. 2. 2 + 0 (4 E)

A series of lectures and round-table conferences comprise this course. It is intended to provide an opportunity for the oral presentation of modern electrical engineering developments and a detailed analysis of technical articles in the contemporary publications. *Professor Harding.*

ENGLISH

Professor Ayres in charge.

Professors Ayres and Shoemaker; Assistant Professors Fore, Liddell, Daehler and Thurber; Instructors Bonner, Cordell, Peckham and Sidwell.

1-2. English.—Sem. 1 and 2. 3 + 0 (Freshmen)

Precedes English 5, 6 and 7a.

This work includes the study of Composition, Rhetoric, and General Literature. At least one theme is required each week on assigned subjects.

Professors Ayres, Fore, Daehler and Liddell; Messrs. Bonner, Cordell, Peckham and Sidwell.

5. Literature—English Poetry.—Sem. 1 or 2. 3 + 0 (Sophomores)

6. Literature—English Prose, the Novel. Sem. 1 or 2. 3 + 0 (Sophomores)

Must be preceded by English 1 and 2.

The work includes a study of English poetry—Milton, Pope, Burns, Tennyson; English prose, the novel.

Professors Shoemaker, Fore and Liddell; Messrs. Peckham and Sidwell.

7a.—Argumentation.—Sem. 1 or 2. 3 + 0 (op. Sophomores)

Must be preceded by English 1 and 2.

The purpose of the course is to train in accuracy and readiness of thought and speech. A text-book is used and practice given in the preparation of briefs and in oral debate. *Professors Daehler and Thurber.*

8-9. Nineteenth Cenutry Prose.—Sem. 1 and 2. 3 + 0 (el. 3 A & S)

This course comprises a series of lectures on the English language and a careful study of the essay and the short story. Analysis of style is made the prominent feature of this work. One theme each month is required. In this are presented the results of an original study of the characteristics of style of the literature being studied. *Professor Shoemaker.*

11-12. Shakespeare, Browning, Tennyson. Sem. 1 and 2. 3 + 0 (el. 3 & 4 A & S)

Professor Shoemaker.

14. Public Speaking.—Sem. 1 or 2. 3 + 0 (el. 3 & 4)

The purpose of this course is to develop efficiency in public speaking. A text book is used, the best speeches of the day are studied, and constant practice in extempore speaking is given through the semester. *Professor Thurber.*

15. Advanced Composition.—Sem. 1 or 2. 3 + 0 (el. 3 & 4)

This course is designed for those who desire special training in technical or journalistic writing. Constant practice will be given in the preparation of manuscripts for the press. *Professor Daehler*

16. Public Speaking.—Sem. 2. 3 + 0 (el. 3 & 4)

Must be preceded by English 14. *Professor Thurber.*

17-18. American Literature.—Sem. 1 and 2. 3 + 0 (el. 3 & 4 A & S)

This line of study gives a general survey of American Literature. The colonial and revolutionary periods are considered briefly, the principal emphasis being placed upon the literature of the nineteenth century. The work is carried on by means of lectures, assigned readings, discussions, and oral and written reports.

Professor Fore.

21-22. Technical Writing.—Sem. 1 and 2. 3 + 0 (el. 3 & 4 Eng.)

Regular practice in exposition, reading of scientific literature, and lectures upon the theory of expression constitute the work of the first semester. The work of the second semester comprises a study of special types of technical writing. The practical aspects of the subject are emphasized throughout. *Professor Daehler.*

ENTOMOLOGY

Professor Troop in charge.
Professor Troop; Assistant Professor Price.

1. Anatomy and Classification of Insects.—Sem. 1. 2 + 2 (1 A)

Precedes Entomology 2, 3, 3a and 6.

This course treats of the structure and classification of insects and of the life history and the various methods of controlling noxious species. Numerous families of beneficial insects are considered. It also treats of the science of bee keeping, winter and summer care and management of bees, comb and extracted honey, hives and other equipment and appliances, and bee parasites. A collection of insects is required.

Professors Troop and Price.

2. Fruit and Garden Insects.—Sem. 1. 2 + 2 (el. 3 A)

Must be preceded by Entomology 1.
Precedes Entomology 4 and 5.

This course takes up the life history of the more important species of insects which infest fruit and truck crops as well as forest and shade trees; special attention is given to the principles and methods of control. *Professor Price.*

3. Farm Crop Insects and Animal Parasites.—Sem. 2. 2 + 2 (el. 3 A)

Must be preceded by Entomology 1.

Precedes Entomology 4 and 5.

This course includes the study of the life histories of the more important species of insects which infest general farm crops and stored grain, also animal parasites, both external and internal; special attention is given to principles and methods of control. *Professor Price.*

3a. Apiculture.—Sem. 2. 2 + 2 (el. A)

Must be preceded by Entomology 1.

This course includes the study of the location and equipment of the apiary, races of bees, care throughout entire season, production and marketing of comb and extracted honey, diseases and enemies of bees, and practical work in all important phases of the subject. *Professors Troop and Price.*

4-5. Systematic and Technical Entomology. Sem. 1 and 2. 2 + 3 (el. 4 A)

Must be preceded by Entomology 2 or 3.

This course is designed to meet the needs of students who desire a further technical knowledge of insects. It involves studies in the physiology, anatomy, ecology, literature and technique of insects. Special groups of insects will be taken up by the several students to suit their individual needs. Lectures will be given upon entomological subjects, including the work of the U. S. Bureau of Entomology, experiment station methods, field work, etc. *Professors Troop and Price.*

6. Entomology for Teachers.—Sem. 2. 2 + 2 (el. 3 A)

Must be preceded by Entomology 1.

This course includes the life history, control and means of identification of the more important families of insects. The making and care of school collections, cages and aquariums will also be considered. There will be frequent discussions and reports on methods of teaching Entomology. *Professors Troop and Price.*

FORESTRY

Professor Coulter in charge.

Professors Coulter and Enders; Assistant Professors Prentice and Toole; Instructor Heimlich.

1. Forest Botany—Hardwoods.—Sem. 1 or 2. 2 + 4 (el. A & S)

2. Forest Botany—Conifers.—Sem. 1 or 2. 2 + 4 (el. A & S)

Must be preceded or accompanied by Biology 1 and 2.

Precedes Forestry 13. Course 2 precedes or accompanies Horticulture 18.

This comprises the study of trees and shrubs, particular attention being given to those of the Central States. The identification of woody plants by external features, both in summer and winter aspects, will receive special consideration. Field observation upon local species and laboratory work upon less conspicuous characters useful in identification will constitute an important feature of the work.

While local forms are taken as types, the principal trees of economic importance in North America are considered in regard to their botanical characteristics, geographical distribution, and relative values. *Mr. Heimlich.*

3-4. Elements of Silviculture.—Sem. 1 and 2. 2 + 4 (el. A & S)

Must be preceded or accompanied by Biology 1 and 2.

These courses consider factors governing forest growth and distribution; forest influences; principles of forest cutting; methods of reproducing forests; consideration of species important in forestry; silvicultural studies; markings for forest cuttings; seeds and seed dissemination; sowing and planting wood crops. The instruction includes lectures, laboratory work and field practice. *Professor Prentice.*

5-6. Forest Mensuration.—Sem. 1 and 2. 2 + 4 (el. A & S)

The course embraces timber cruising, timber estimating, and lumber inspection. The theory of mensuration is presented to familiarize the student with the principles by which the contents and increments of forest crops are measured, but the chief aim of the course is to furnish a working knowledge of the methods of estimating standing timber, the use of various actual standards of timber measurement so that the student can deal with definite lumber problems. The practical work involves both laboratory and field practice. *Professor Prentice.*

7-8. Forest Management.—Sem. 1 and 2. 3 + 0 (el. A & S)

The course presents: The economic principles underlying the management of forest property; consideration of the normal forest; study of forest production, with a discussion of the results of recent research; methods of determining the value of forests; determination of financial results of forestry under different conditions; methods of preparing forest working plans. *Professor Coulter.*

9. Forest Protection.—Sem. 1. 3 + 0 (el. A & S)

A consideration of methods of protection against man; from animals, notably insects; from fungous disease; from storm, frost, heat, etc.; against toxic gases. The laboratory work includes a study in the field of the action of the many influences threatening the welfare of the forest, practical exercises, and experimental work. *Professor Prentice.*

10. Forest History.—Sem. 2. 3 + 0 (el. A & S)

This course is designed to give a general idea of the forest administration of the chief countries of the world from the point of view of historical development. Important aspects of management, forest laws and various silvicultural systems are taken up for the understanding of the relation between the present forest policy of foreign countries and that of the United States.

Special attention is given to the establishment and organization of the Federal Forest Reserve System. *Professor Prentice.*

11. Technical Forestry.—Sem. 1. 2 + 4 (el. A & S)

(a) Structural Timbers.—Twelve weeks, one lecture per week.

Including definition of structural timber; consideration of species used for structures; distribution of supplies; characteristics, growths and defects; strength qualities; specifications and uses.

Inspection of structures in the field, three periods. Demonstration in the testing laboratory, three periods.

(b) Forest Maps.—Six weeks, one lecture per week.

Including the various methods of making forest maps and representing the topography, with a view of enabling the student to read maps and understand the methods of preparing them. *Professor Prentice.*

12. Forest Utilization.—Sem. 2. 3 + 0 (el.)

A series of lectures given by experts upon the various aspects of the Government Forest Service. The course embraces the subjects implied by the title and also includes lumbering, timber preservation, wood-lot planting, etc. The hours of these lectures will be arranged from time to time in such a way as to afford the largest opportunity to the students of the University. *Professor Prentice.*

13. Forest Pathology.—Sem. 1. 2 + 4 (el. A & S)

Must be preceded by Forestry 1 and 2.

The identification of fungi causing diseases in forest trees; manner of infection; physiological effect on trees; methods of prevention and control; history of diseases; distribution, and economic importance. Seedling diseases are also considered. Practical work in the field occupies a part of the time. *Professor Toole.*

14. Forest Zoology.—Sem. 2. 2 + 4 (el. A & S)

Must be preceded or accompanied by Biology 1 and 2.

The course considers the classification, life histories, relations to the forest and other economic relations of birds and mammals.

The greater part of the work is upon insects, embracing those of economic interest, with special reference to the forms which injure forest trees; methods of combating the attacks of insects are considered and other subjects such as parasites, special adaptations and relationships of insects are considered in their bearings upon the subject.

Field Work: Observations upon mammals, birds and insects with full notes and drawings. Laboratory work; identification and description of species.

Professor Enders.

GEOLOGY

Professor Coulter.

1. Geology.—Sem. 2. 2 + 0 (4 C)

Lectures upon dynamical and structural geology are given. The course is designed to give the student an insight into the methods of earth science, as well as some knowledge of the more familiar materials making up the earth's crust. Especial attention is given to the economic phases of the subject and to its relations to the work of the Engineer. *Professor Coulter.*

HISTORY

Professor Moran in charge.

Professor Moran; Associate Professor Bond; Instructor Smith.

1. History of the 19th Century. Sem. 1 or 2. 3 + 0 (2 Ch; 3 E M P; 4 C)

Professors Moran and Bond; Mr. Smith.

2-3. History of the 19th Century.—Sem. 1 and 2. 3 + 0 (3 A & S)

Professors Moran, Bond, and Mr. Smith.

4. English History.—Sem. 2. 3 + 0 (el. 4 A & S)

5. American Government.—Sem. 1. 3 + 0 (el. 4 A & S)

Professor Moran.

6-7. American History.—Sem. 1 and 2. 3 + 0 (el. 4 A & S)

The entire field of American History is covered by means of text-books, lectures, class reports and assigned readings. *Professor Moran.*

8. Institutions, Resources, and Trade of the Latin-American Countries. Sem. 2. 3 + 0 (el. 4 A & S; op. 4 Eng.)

Professor Bond.

HOME ECONOMICS

Professor Matthews in charge.

Professor Matthews; Instructors, Misses Gamble, Howe, Partch, Mallon, Bloye and Mrs. King; Assistant, Miss Fisher.

NOTE.—Courses in Home Economics should be elected in the following order:
A Group.—1 and 2, or 1a and 2a; 10, 11 and 12; 21, 14 and 9, 15.
B Group.—1 and 2, or 1a and 2a; 10; 13, 18 and 13a, 5; 16, 19 and 17, 20.

1. Foods and Cookery.—Sem. 1. 3 + 3 (op. 1 S)

Precedes Home Economics 10.

The course includes a brief history of cookery and a study of the occurrence, production and manufacture of common food materials and a study of the chemical analyses of foods as affecting their relative food value.

The laboratory work is arranged to develop skill in the technique of cookery by means of a systematic introduction to the scientific principles involved.

Misses Bloye and Partch.

2. Sewing and Textiles.—Sem. 2. 3 + 3 (op. 1 S)

Precedes Home Economics 10.

The lecture hours will be devoted to a study of textile materials, including their history, manufacture and use.

The laboratory work consists of practice in making stitches, hems and seams; their application in the making of simple garments; the use and care of sewing machines. *Miss Howe.*

1a. Sewing and Textiles.—Sem. 1. 3 + 3 (op. 1 S)

Precedes Home Economics 10.

Optional for Freshmen in Science who have already completed a satisfactory amount of sewing and textiles work in High School. Admission to this course must be approved by the Department of Home Economics.

The lecture hours are devoted to the study of textiles including their identification and selection; their uses for clothing and household furnishings.

The laboratory work consists of the making of garments with emphasis placed on both hand and machine sewing. *Miss Howe.*

2a. Foods and Cookery.—Sem. 2. 3 + 3 (op. 1 S)

Precedes Home Economics 10.

Optional for Freshmen in Science who have already completed a satisfactory amount of Foods and Cookery work in High School. Admission to the course must be approved by the Department of Home Economics.

There is presupposed a thorough knowledge of the principles of food selection and preparation. A detailed study of foods as to composition, food value, cost and nutritive value constitutes the lecture work in this course.

The laboratory work deals with experimental cookery.

Misses Bloye and Fisher.

5. Home Sanitation.—Sem. 2. 3 + 0 (el. S)

Precedes Home Economics 16, 17, 19 and 20.

A study of the essentials of personal hygiene; instruction in nursing as suited to use in the home; general lectures on sanitation in the home, including a discussion of air, foods and water as carriers of disease; methods of sewage disposal, laws regulating quarantine, disinfection and fumigation, school sanitation and vital statistics.

Miss Partch.

9. Special Investigations.—Sem. 2. 2 + 6 (el. S)

Must be preceded by Home Economics 11 and 12.

Subjects are assigned and investigations and experiments carried out by the student. Much reference work is required.

Professor Matthews and Misses Gamble, Partch, Bloye and Mrs. King.

10. Foods and Textiles.—Sem. 1 or 2. 2 + 6 (el. S)

Must be preceded by Home Economics 1, 2 or 1a, 2a.
Precedes Home Economics 11, 12, 13, 13a, and 18.

(a) One lecture hour is devoted to the study of food combinations in relation to the planning and serving of meals. Papers and reviews of bulletins, books and magazines dealing with this subject are required.

Three hours of laboratory are devoted to fruit canning, and preserving, jelly and jam making, preparation of fruit juices, vegetable canning and pickling, and the preparation and serving of simple menus.

(b) One lecture hour is devoted to the study of textiles. This work consists of a study of the different textile fibers; weaving, dyeing and printing, distinguishing features of different materials and tests for adulterations in relation to buying of fabrics.

Three hours of laboratory are given to advanced work in sewing.

Misses Howe and Gamble.

The course is preceded or followed by a course (Biology 7) treating of the Sanitary Biology of the Dwelling. (See page 92.)

11-12. Nutrition.—Sem. 1 and 2. 3 + 3 (el. S)

Must be preceded by Chemistry 1, 2, 29 and 30, and Home Economics 10.
Precedes Home Economics 9, 14 and 21.

This course includes a detailed study of carbohydrates, fats, protein, mineral matter and water. Also a similar study will be made of typical foods such as milk, meat and flour. The methods commonly applied in studying dietaries will be used in determining food requirements of individuals as affected by age, size, activity and disease.

The laboratory work consists of chemical tests of the various foods studied; practice in constructing dietaries suitable to different conditions in health and in disease; and the preparation of meals with special reference to their calorific and nutritive value. *Miss Mallon.*

13-13a. Designing and Dressmaking.—Sem. 1 and 2. 2 + 6 (el. S)

Must be preceded by Home Economics 10.

(a) The designing of garments will be discussed from the standpoint of suitability, utility and economy. The garments made in the laboratory will be designed by the students with these ideas in mind. Advanced work along the line of textiles will be given. A series of lectures on the history of costume will be a part of the course.

(b) The laboratory work will consist of instruction in the making of simple dresses, waists and tailored skirts. *Mrs. King.*

14. The House.—Sem. 1. 3 + 0 (el. S)

Must be preceded by Home Economics 11 and 12.

This course includes a series of lectures on the origin of the family; the evolution of the dwelling; plans for the modern house, followed by a discussion of its furnishings from the economic, sanitary and aesthetic standpoint. The plan for a house and the arrangement of its furnishings will be worked out by each student as a part of the course. *Professor Matthews.*

15. Household Management.—Sem. 2. 3 + 0 (el. S)

This course includes a series of lectures and discussions on problems in the administration of the home; division of the income and the budget system. A discussion of principles underlying laundry work will be held. A series of lectures on home nursing will form a part of this course.

Professor Matthews and Miss Partch.

16. Advanced Nutrition.—Sem. 1. 3 + 3 (el. S)

Must be preceded by Chemistry 5 and 6 and Home Economics 5 and 18.

This course is a more advanced and more detailed study of the various food stuffs as well as the typical foods in their different relations to the processes of nutrition. Considerable collateral reading of current journals will be required to correlate the work with Chemistry, Physiology and Medicine.

The laboratory work consists of experiments which are applicable to the principles involved in both chemistry and physiology of foods and food stuffs.

Miss Mallon.

17. Advanced Nutrition.—Sem. 2. 3 + 3 (el. S)

Must be preceded by Chemistry 5, 6; Home Economics 5 and 18.

This course is an advanced study of Dietetics from the standpoint of an exact science. Special emphasis will be laid on the study of dietary standards and diet in disease, as well as a study of food requirements as affected by various conditions.

Laboratory work consists of an accurate qualitative study of food materials, the calculation of food values, the construction of dietaries suitable in both health and disease and according to certain standards, and the preparation of meals with reference to the same. *Miss Mallon.*

18. Institutional Management.—Sem. 1. 3 + 0 (el. S)

Must be preceded by Home Economics 10; Biology 7.

Precedes Home Economics 19 and 20.

This course includes work along the line of home management and institutional management; with special reference given to school lunch-room management, hospital administration and work in other public institutions.

Professor Matthews and Miss Gamble.

19-20. Home Economics Seminar.—Sem. 1 and 2. 1 + 3 (el. S)

Must be preceded by Home Economics 18 and 5.

This line of study includes a review of books and current journals along various lines of Home Economics with the preparation of bibliographies. Much library work is required and weekly reports are made. *Professor Matthews and Miss Mallon.*

21. School Lunch Room Management.—Sem. 1. 3 + 0 (el. S)

Must be preceded by Home Economics 11, 12.

The course includes the planning of equipment and a study of the problems of management, together with a discussion of methods of conducting class work in cookery in connection with a school lunch room. *Miss Gamble.*

HORTICULTURE

Professor Greene in charge.

Professor Greene; Assistant Professors Anderson and Lommel; Instructors Cullinan, Mason and Smith.

11. Principles of Fruit Growing.—Sem. 1. 2 + 2 (2 A)

Precedes Horticulture 13, 14, 16, 18, 19, 21 and 29.

This course is designed particularly to fit the needs of those who intend to return to the farm. It treats of the principles of plant propagation, care and management of small plantations of tree fruits and small fruits, reclamation of old orchards, and the application of control measures for insects and diseases affecting the common fruits.

Professor Lommel; Messrs. Mason and Smith.

12. Principles of Vegetable Gardening.—Sem. 2. 2 + 2 (2 A)

Precedes Horticulture 14, 16, 18, 19, 23, 25 and 29.

A general survey is made of the vegetable growing industry, involving a study of the elementary principles of crop production and the application of these principles to the management of small plantings. A study is made of the varieties and management of vegetable crops; garden rotations, companion and succession cropping and the making and care of hot beds, and cold frames, with special emphasis on the Farmer's Home Garden. Laboratory work consists chiefly of actual gardening practice.

Professor Lommel; Messrs. Mason and Smith.

13. Practical and Commercial Pomology.—Sem. 1. 2 + 4 (el. 3 A)

Must be preceded by Horticulture 11.
Precedes Horticulture 13a.

(a) Practical Pomology.—The practical phases of fruit production for market purposes are taken up in detail, such as propagation, setting, laying out of orchard grounds, selection of varieties, cultivation, fertilizing, harvesting, grading, packing and storing.

(b) Commercial Pomology.—In this part of the course are considered transportation and marketing problems, the organization and methods used in different systems of co-operative marketing, wholesale and private markets, commission houses, etc.

Professor Anderson and Mr. Cullinan.

13a. Systematic Pomology.—Sem. 1. 2 + 2 (el. 4 A)

Must be preceded by Horticulture 13.

A study is made of the botany, origin, history, description, classification, identification and judging of varieties of small and orchard fruits. *Professor Anderson.*

14. Spraying.—Sem. 2. 2 + 4 (el. 3 A)

Must be preceded by Horticulture 11 and 12.
Precedes Horticulture 18.

The history and practice of spraying horticultural crops are considered. The student becomes familiar with the formulæ, preparation, manner and time of applying spray mixtures by actual practice in the laboratory and field. A study is made of the different types of spray nozzles, hand pumps, and power outfits.

Professor Anderson and Mr. Cullinan.

16. Plant Breeding as Applied to Horticulture. Sem. 1. 2 + 2 (el. 4 A)

Must be preceded by Horticulture 11 and 12, and preceded or accompanied by Animal Husbandry 8.

In this course a study is made of the methods and principles of breeding as applied to horticultural plants. Attention is devoted to the principles of plant evolution, heredity, and mutation, especially in reference to the work of modern horticultural plant breeders. *Mr. Cullinan.*

18. Landscape Gardening.—Sem. 2. 2 + 4 (el. 4 A)

Must be preceded by Horticulture 11, 12 and 14, and preceded or accompanied by Forestry 2.

The principles of landscape gardening are studied with special reference to laying out and planting small parks, rural home grounds, and school grounds. The student becomes acquainted with the ornamental trees, shrubs and vines and the proper use of each in landscape work. *Mr. Smith.*

19. Literature of Horticulture.—Sem. 1. 2 + 4 (el. 3 A)

Must be preceded by Horticulture 11 and 12.
Precedes Horticulture 20.

A general survey is made of the whole field of horticultural literature. Especial attention is given to the review and use of the publications of the United States Department of Agriculture, the State Experiment Stations and modern horticultural books. *Professor Greene.*

20. History, Economics and Research.—Sem. 2. 2 + 2 (el. 4 A)

Must be preceded by Horticulture 19.

In this course a study is made of the history and development of horticulture in this country; the present industrial status of the industry, and its trends in organization, specialization, and management; special topics are assigned for individual work to train the student in the methods of research. *Professor Greene.*

21. Small Fruits.—Sem. 2. 2 + 2 (el. 3 A)

Must be preceded by Horticulture 11.

This course involves a detailed study of the culture of small fruits; their history, varieties, propagation, pruning, soil management, pest control, harvesting and marketing. *Professor Anderson and Mr. Cullinan.*

22. Commercial Floriculture.—Sem. 2. 2 + 2 (el. 3 A)

Must be preceded by Horticulture 25.

A study of the field of commercial floriculture including the standard cut flowers and potted plants, decorative and bedding plants, and herbaceous perennials. Work will include methods of propagating, growing, harvesting, packing and marketing flowers, a study of greenhouse soils and fertilizers and methods of controlling insect pests and diseases. Laboratory work consists chiefly of practical exercises in the greenhouse. *Mr. Smith.*

23. Market Gardening.—Sem. 2. 2 + 4 (el. 4 A)

Must be preceded by Horticulture 12.

Commercial methods of growing vegetables, and the uses, construction and management of commercial hotbeds, cold-frames and forcing boxes; special adaptations of various localities to special crops; the soils, culture, harvesting, grading, packing, storing, transportation and marketing of vegetables. Especial emphasis will be placed on those crops which are best suited to Indiana conditions. Laboratory work consists chiefly in practical exercises in the gardens and will include inspection trips to local market gardens and some of the principal vegetable growing regions of the state.

Professor Lommel and Mr. Mason.

24. Vegetable Forcing.—Sem. 1. 2 + 2 (el. 4 A)

Must be preceded by Horticulture 25.

A comprehensive study of each of the vegetable forcing crops, including propagating, cultural methods, harvesting and marketing, and study of cropping systems for vegetable greenhouses and the control of insects and diseases of vegetable forcing crops. Laboratory work consists chiefly of practical exercises in the greenhouse. *Professor Lommel and Mr. Mason.*

25. Greenhouse Construction and Management. Sem. 1. 2 + 4 (el. 3 A)

Must be preceded by Horticulture 12.

Precedes Horticulture 22 and 24.

A study of the various types and methods of greenhouse construction including cost of materials, heating and irrigating systems and location and arrangement of greenhouse and potting sheds. The principles of plant growing under glass, including watering, ventilating, greenhouse fumigation and soil sterilization will be studied and the laboratory work will consist of practice in greenhouse design and construction and practical exercises in the management of greenhouses. *Mr. Mason.*

29. General Horticulture.—Sem. 1. 2 + 2 (el. A)

Must be preceded by Horticulture 11 and 12.

The course embraces various phases of Horticulture which are of special interest to teachers and to those general students who expect to return to the farm. Special consideration will be given to those phases of Horticulture not covered in the work of the sophomore year, including systematic pomology, rural home adornment and horticultural references. *Messrs. Smith and Cullinan.*

MATERIA MEDICA

Professor Jordan in charge.
Professor Lee, and Assistant.

5-6. Vegetable Materia Medica.—Sem. 1 and 2. 2 + 0 (1 P & P 1)

Precedes Materia Medica 12.

This line of study treats of the Latin and common names of medicinal plants, their habitats, morphology, methods of collection and preservation, active constituents, and adaptability for medicinal use. Special attention is given to the identification of crude drugs by their physical characteristics, appearance, odor, and taste. Note book work on classification by morphology, by active constituents, by natural orders.

Medicinal drugs of animal origin are also studied in this work.

Professor Lee.

7. Inorganic and Organic Materia Medica.—Sem. 1. 2 + 0 (4 P & P 2)

Must be preceded or accompanied by Pharmaceutical Chemistry 8 and 15, or equivalent.

Precedes Materia Medica 12.

Lectures and recitations on inorganic and organic official and important unofficial chemicals, including their Latin names, synonyms, sources, physical and chemical characteristics, formulæ, preparation, and purity standards.

Identification by physical properties, appearance, odor, taste, and note book work in various classifications of these chemicals, are required. *Professor Lee.*

8. Modern Materia Medica.—Sem. 2. 2 + 0 (4 P & P 2)

Must be preceded or accompanied by Pharmaceutical Chemistry 8 and 15, or equivalent.

Lectures and recitations on the many new and unofficial remedies recognized by the American Medical Association, and on reports of the A. M. A. laboratories. A rapid review of all Materia Medica ends the course. *Professor Jordan.*

10. Microscopy of Drugs.—Sem. 2. 1 + 3 (3 P & P 2)

Must be preceded by Biology 1 and 2.

Precedes Materia Medica 14.

The lectures deal with the histological features of drugs and their common adulterants.

In the laboratory drugs are studied microscopically, and by the aid of microchemical tests, with particular attention to their diagnostic features. A number of unknown mixtures are presented for the identification of the drugs and their adulterants. *Mr. Heimlich.*

12. Pharmacology and Toxicology.—Sem. 2. 4 + 0 (4 P & P 2)

Must be preceded by Materia Medica 5, 6, 7, and by Biology 46, 47 or its equivalent.

Lectures and recitations on the actions and uses of vegetable, inorganic and organic drugs. Dosage, poison antidotes, and first aid methods receive detailed attention. Demonstrations of physiological effects are given and reactions shown graphically on the smoked drum. *Professor Lee.*

14. Advanced Microscopy.—Sem. 2. 1 + 3 (el. 4 P)

Must be preceded by Biology 1 and 2, and by Materia Medica 10.

Lectures and recitations on microscopy of vegetable foods and technical products, microchemical reactions of inorganic chemicals, quantitative microscopic methods and micrometry.

Laboratory work on the above and on microscopic refractive index and polarization, photomicroscopy, embedding and general microtome sectional methods, permanent mounting, working with turn tables, mechanical stages, camera lucida, illuminators, counting cells, binocular microscopes, etc. *Professor Lee.*

MATHEMATICS

Professor Kenyon in charge.

Professors Kenyon and Marshall; Associate Professors Bates and Hadley; Assistant Professors James, Stone and Zehring; Instructors Doan, Graves, Hazard, Krotzer, Lehman, Manchester and Robbins; Assistants Sanders, Thuerk and Misses Gilmore and Warren.

1-2. Trigonometry; College Algebra; Analytic Geometry. Sem. 1 and 2. **6 + 0** (1 Eng.)

Precedes Mathematics 3 and 4, and Physics 1, 2 and 1a, 2a; Course 1 precedes Civil Engineering 1 and 4.

Professors Kenyon, Bates, Cunningham, Greve, Hadley, James, Marshall, Stone and Zehring; Dr. Graves; Messrs. Doan, Hazard, Koepke, Krotzer, Lehman, McEachron, Manchester, Robbins, Sanders and Thuerk.

3-4. Analytical Geometry and Calculus.—Sem. 1 and 2. 5 + 0 (2 Eng.)

Must be preceded by Mathematics 1 and 2.

Precedes Electrical Engineering 1, 2, 5, 6, 9, 10, 19, 20, 34 and 39; Course 3 precedes Mechanical Engineering 11 and 4 precedes Applied Mechanics 1, and Mechanical Engineering 35, 36, 37.

In courses 3 and 4 practice is given in the solution of general problems, and special attention is paid to the application of these subjects to geometry, the physical sciences, mechanics, and the problems of engineering practice. This leads to an early and cordial appreciation of the large and necessary part which these studies form in the evolution of an engineer. To some extent the work presented to the various sections is selected with reference to the special needs of students in the different schools.

Professors Kenyon, Albright, Bates, Greve, Hadley, James, Marshall, Stone, Wiley and Zehring; Dr. Graves; Messrs. Crepps, Doan, Hazard, McEachron and Robbins.

11-12. Elementary Analysis and Applications. Sem. 1 and 2. 3 + 0 (1 A S P)

Precedes Mathematics 13, 14.

This course presents selected topics from Trigonometry and Algebra and other branches of elementary analysis which are fundamental in the biological, chemical, and physical sciences, and makes numerous applications to problems which confront students of agriculture and general science.

Professors Kenyon, Aitkenhead, Bates, Cunningham, Hadley, James, Slipher and Zehring; Messrs. Doan, Koepke, Lehman, Sanders and Robbins; Misses Gilmore and Warren.

13. Analytical Geometry.—Sem. 1. 3 + 0 (el. A S 3 P)

14. Calculus.—Sem. 2. 3 + 0 (el. A S 3 P)

Must be preceded by Mathematics 11 and 12.

Precedes Chemistry 15, 16, 17, 18. *Professor James.*

15-16. Advanced Mathematics.—Sem. 1 and 2. 3 + 0 (el. A & S)

Must be preceded by Mathematics 13 and 14, or equivalent.

Precedes Physics 13 to 26, Mathematics 17 and 18.

These are courses in advanced analytic geometry, advanced calculus, differential equations, or other advanced mathematical subjects desired by the class.

Professor Kenyon.

17-18. Advanced Mathematics.—Sem. 1 and 2. 3 + 0 (el. A & S)

Must be preceded by Mathematics 15 and 16.

A selection from advanced mathematical subjects determined by conference between the instructor and the class. *Professor Bates.*

MECHANICAL ENGINEERING

Professor Young in charge.

Dean Benjamin; Professors Young, Ludy, and Cole; Associate Professor Munro; Assistant Professors Berry, King, Noland and Rubenkoenig; Instructor Bush; Assistant Young.

11. Mechanism.—Sem. 2. 3 + 0 (2 M)

Must be preceded by Mathematics 3 and Physics 1.
Precedes Mechanical Engineering 22 and 31.

Under this head are studied the principles underlying the action of the elementary combinations of which all machines are composed; the communication of motion by gear-wheels, belts, cams, screws and link-work; the various means of producing definite changes of velocity; and the principles of epicyclic trains, parallel and quick return motions. *Professors King and Noland; Mr. Bush.*

12. Contracts and Specifications.—Sem. 2. 1 + 0 (4 M)

Must be preceded or accompanied by Mechanical Engineering 22 and 31.

The work embraces a study of the law of contracts as applied to the various phases of engineering work and the preparation of engineering specifications. *Professor Ludy.*

21. Power Plants and Transmission.—Sem. 1. 4 + 0 (3 Ch)

Precedes Mechanical Engineering 78.

This work includes the study of (a) the principles underlying the actions of the elementary combinations of which all machines are composed, the communication of motion by link-work, cams, wrapping connectors and gear-teeth, and (b) the different methods employed for the transmission and measurement of power and the advantage and disadvantage of the various forms of transmission. Attention is also given to use of steam tables with problems and apparatus that enter into the design and operation of power plants. *Professor King.*

22. Power Plants and Power Transmission.—Sem. 2. 3 + 0 (4 M)

Must be preceded by Mechanical Engineering 11, and preceded or accompanied by 31.
Precedes or accompanies Mechanical Engineering 12.

This work requires a study of the methods employed for the transmission and measurement of power in machine shops and factories. Prominence is given to matters of efficiency, advantages and disadvantages and conditions of use of the various forms of transmission. Attention is also given to the design of transmission machinery, and to the design, arrangement and operation of the equipment in power plants. *Professor King.*

23-24. Industrial Engineering.—Sem. 1 and 2. 2 + 0 (4 M)

Must be preceded by at least two Junior Engineering subjects or more than one year shop experience.
Accompanies Mechanical Engineering 27, 28, 86 and 87.

Lectures on the arrangement and construction of buildings for manufacturing plants; types of building, methods of roof construction and of lighting and heating plants; arrangement of machinery and installation of cranes and hoists; the organization and management of shops; methods of paying wages; systems of cost accounting and shop bookkeeping; specifications and contracts; economics of power generation and transmission; costs of maintenance and operation; losses due to depreciation, interest, etc.; and total cost of power per horsepower hour per year, including interest, rent, depreciation, labor, fuel, etc.; lectures illustrated by slides and diagrams. *Dean Benjamin and Professor Rubenkoenig.*

25-26. Heading and Ventilating.—Sem. 1 and 2. 2 + 0 (op. 4 M)

Must be preceded or accompanied by Physics 5.

A comprehensive study of modern heating and ventilating practice where fundamental principles are studied in connection with their application to practical problems. A detailed study is made of each type of hot air, hot water and steam systems and all their combinations, as applied to the heating and ventilating of residences, public buildings, office buildings, factories and industrial plants. Central station heating is also taken up in detail, together with the individual units of various equipment which go to make up the different systems. During the entire course special attention is given to costs and comparative efficiencies. *Professor Noland.*

27. Industrial Management.—Sem. 1. 2 + 0 (op. 4 M)

Must be accompanied by Mechanical Engineering 23.

This course is given under two heads, as follows:

(a) HEATING AND VENTILATING (Eight Weeks). A brief study is made of the elementary principles of heating and ventilating. The various systems are studied with special attention to the types used in factories. The course is accompanied by simple problems relating to the fundamental design of heating and ventilating for factory or industrial buildings and for groups of such buildings. *Professor Noland.*

(b) COST ACCOUNTING (Eight Weeks). An analysis of the elements of cost together with the elements of calculating these costs and applying them to industrial enterprises. The course includes a study of the relation of costs to the financial books, of the various methods used to distribute burden, and of the fundamental principles of cost system in use. Simple problems will be given to show the application of the principles involved. *Professor Rubenkoenig.*

28. Industrial Management.—Sem. 2. 2 + 0 (op. 4 M)

Must be preceded by Mechanical Engineering 23 and accompanied by 24.

This course is given under two heads, the departments of Electrical Engineering and Biology co-operating in its administration:

(a) INDUSTRIAL LIGHTING (Eight Weeks). This course looks toward the improving of output of manufacturing and industrial establishments. It includes a study of illuminants, the principles of illuminating engineering, and the designing of systems for specific shop purposes. *Professor Topping.*

(b) INDUSTRIAL SANITATION AND FIRST AID (Eight Weeks). The course will review briefly the anatomy and physiology of the human body, special stress being placed upon the relationship of the skeleton and circulatory, respiratory and digestive systems to injuries. The financial and hygienic value of fresh air, good lighting and toilet facilities will be fully discussed. First aid demonstrations will be given in the use of the various bandages, the tourniquet, splints and artificial respiration. Practice in the application of these will be required. Simple remedies for common complaints, such as colic, heat stroke, headache, etc., will be suggested. *Professor Terry.*

31. Engines and Boilers.—Sem. 1 or 2. 3 + 0 (3 E & M)

Must be preceded by Physics 1 and Mechanical Engineering 11, and preceded or accompanied by Physics 2.

Precedes Mechanical Engineering 35, 36, 37, 51, and precedes or accompanies Mechanical Engineering 12, 22, 34, and 71a.

The course consists of a study of fuels, their combustion under steam boilers, and the principles and operation of gas producers. The various types of boilers and boiler room equipment are studied and problems involving the power and efficiency of power plants considered. The common types of steam engines, steam turbines and gas engines are studied in detail as to the principles involved in their construction and operation. *Professors Cole, Munro, and Noland.*

33. Steam and Gas Power.—Sem. 1. 3 + 0 (3 C)

Accompanies Mechanical Engineering 77.

This course consists of a general study of steam and gas power plants with equipments including steam boilers, gas producers, steam and gas engines and steam turbines with their accessories; the type and size of machinery to be installed depending upon the service required and the relative costs and advantages of each; and the combustion, handling and storage of fuels used in power plants. *Professor Munro.*

34. Valve Gears.—Sem. 1. 0+2 (3 M)

Must be accompanied by Mechanical Engineering 31.

The object of the course is to give the student training in the fundamentals of valve action and valve diagrams; to study the main types of valve gears and to become familiar with the method of analyzing these gears graphically. It includes the simple D valve engine, the high speed automatic or variable cut-off engine, the four-valve and Corliss engine, the poppet valve and unaflow engines as well as reversing and expansion gears, including the Stephenson and Walschaart locomotive valve gears. The Zeuner diagram is used in the main, with the Bilgram diagram as complementary.

Professor Noland and Mr. Bush.

35. Thermodynamics.—Sem. 2. 3 + 0 (3 M)

36. Thermodynamics.—Sem. 1. 3 + 0 (4 M)

Must be preceded by Mathematics 4, and Mechanical Engineering 31.

Precedes or accompanies Mechanical Engineering 39, 40, 72 and 73.

The work embraces a study of thermal capacities, the laws of thermodynamics, the thermodynamics of gases, saturated vapors and superheated steam. The application of the laws of thermodynamics to the steam engine is shown, and a study is made of steam engine economy by entropy temperature analysis. The types and efficiencies of gas engines, air compressors and refrigerating machines are also discussed.

Professors Cole and Munro.

37. Thermodynamics.—Sem. 1. 5 + 0 (4 E)

Must be preceded by Mathematics 4, and Mechanical Engineering 31, and preceded or accompanied by Physics 3.

Accompanies Mechanical Engineering 74.

For description of the course see Thermodynamics 35 and 36.

Professors Cole and Munro.

39-40. Steam Turbine Engineering.—Sem. 1 and 2. 2 + 0 (op. 4 M)

Must be preceded or accompanied by Mechanical Engineering 35 and 36, or Mechanical Engineering 37.

Precedes or accompanies Mechanical Engineering 65.

This course embraces a study of the thermodynamic principles underlying the theory of steam turbine design as well as a descriptive study of all classes. The methods of calculating the most important parts of steam turbine construction will be followed to such an extent that a complete design of heat motor of this type may be made. *Professor Ludy.*

41. Gas Engineering.—Sem. 1. 2 + 0 (op. 4 M)

Must be preceded or accompanied by Mechanical Engineering 72 and 73.

The course consists of a study of several characteristic types of internal combustion motors, including both stationary and automobile engines. Special attention is given to an enumeration and discussion of the factors influencing the proper performance of the engines. *Professor Berry.*

42. Gas Engineering.—Sem. 2. 2 + 0 (op. 4 M)

Must be preceded or accompanied by Mechanical Engineering 72 and 73.

The course treats of the chemical and thermo-chemical reactions which take place in the production and utilization of gas, and the characteristic computations necessary to interpret properly the performance of the coke oven, gas bench, gas producer, water gas set, blast furnace or ceramic kiln. The combustion of various kinds of fuel is studied, as well as the construction and operation of the different kinds of gas-producing apparatus. *Professor Berry.*

51. Railway Mechanical Engineering.—Sem. 1. 2 + 0 (op. 4 M)

Must be preceded by Mechanical Engineering 31.
Precedes Mechanical Engineering 52.

Lectures on the design and construction of locomotives and cars, use of steel in car construction, Master Car Builders' Association Standards, car interchange, car lighting and heating, functions of and causes of failures of car parts such as axles, journal boxes, wheels, draft gear, couplers, etc. The various systems of railway shop arrangement are given consideration, including the maintenance of rolling stock, the air brake, tonnage rating, railway organization and management, locomotive classification, costs of operation and reclamation of scrap material. *Professor Rubenkoenig.*

52. Locomotive Performance.—Sem. 2. 2 + 0 (op. 4 M)

Must be preceded by Mechanical Engineering 51.

A study of published results of road-tests and of data derived from the locomotive laboratory of the University, including rates of combustion, draft conditions, evaporative efficiency as affecting boiler performance, steam distribution and cylinder power as affected by speed, cut-off, etc. The effect of superheated steam upon locomotive performance and other important phases of operation. *Professor Rubenkoenig.*

61-62. Machine Design.—Sem. 1 and 2. 1 + 5 (3 M)

Must be accompanied by Applied Mechanics 1 and 2.
Precedes Mechanical Engineering 64, 65, 66, 67, 68, 69, 82, 83, 84 and 85.

Lectures and recitations deal with the application of Mechanics to calculations of machine parts; the work of the drawing room consists in the making of calculations, in the development of working drawings for the various machines under discussion, and in the solution of a limited number of problems usually grouped under the subject of kinematics. *Professors King and Noland.*

64. Engineering Design.—Sem. 1. 0 + 6 (op. 4 M)

Must be preceded by Applied Mechanics 1 and 2, and Mechanical Engineering 61 and 62.

In this work, original designs are made of machine tools and shop layouts or such machinery as traveling cranes, hoists, elevators and conveying machinery, air compressors, steam pumps and steam boilers. The regular course of instruction is supplemented by such reference as may be found on each subject, and with access to trade catalogs and blue prints, the student calculates the principal parts of these appliances and submits a set of detailed working drawings with a complete report of his work.
Professors King and Noland.

65. Steam Turbine Design.—Sem. 2. 0 + 6 (op. 4 M)

Must be preceded by Applied Mechanics 1 and 2 and Mechanical Engineering 39, 61 and 62, and accompanied by Mechanical Engineering 40.

The work embraces the design of steam turbines, by constructing theoretical diagrams and determining the leading dimensions of the proposed machine by each member of the class, after which the details are developed and working shop drawings prepared. *Professors King and Noland.*

66. Car Design.—Sem. 1. 0 + 6 (op. 4 M)

Must be preceded by Applied Mechanics 1 and 2, and Mechanical Engineering 61 and 62.

A study of the principles underlying the design and construction of steel passenger and freight cars. Each student is assigned some special type of car, for which he designs the truck details, underframing, brakes and other details, finally submitting detailed and assembled working drawings and calculations. Especial emphasis is placed upon making the dead, or non-revenue-earning, weight as small as possible, insofar as consistent with strength and principles of good design.
Professor Rubenkoenig.

67. Locomotive Design.—Sem. 2. 0 + 6 (op. 4 M)

Must be preceded by Applied Mechanics 1 and 2, and Mechanical Engineering 61 and 62.

A study of the principles underlying the design and construction of locomotives. Each student is assigned some special type of locomotive, for which he designs the boiler, pistons and rods, crossheads and guides, main and side rods, valve gear, and other details. He finally submits detailed and assembled working drawings and calculations. Attention is called to the use of alloy steels in the design of the reciprocating and revolving parts. *Professor Rubenkoenig.*

68. Gas Engine Design.—Sem. 1. 0 + 6 (op. 4 M)

Must be preceded by Applied Mechanics 1 and 2, and Mechanical Engineering 61 and 62.

This work embraces the design of a line of stationary internal combustion engines using blast furnace gas, producer gas, gasoline or oil as fuel. The work of constructing theoretical diagrams and of determining the leading dimensions of a proposed engine is carried out by each member of the class, after which the details are developed and working shop drawings prepared. *Professor Berry.*

69. Gas Power Plant Design.—Sem. 2. 0 + 6 (op. 4 M)

Must be preceded by Applied Mechanics 1 and 2, and Mechanical Engineering 61 and 62.

This course is similar in arrangement to Mechanical Engineering 83. Special attention is given to the design of gas producers and suction gas producer power plants and accessories. *Professor Berry.*

70-71. Mechanical Laboratory.—Sem. 1 and 2. 0 + 3 (3 M)

Must be preceded or accompanied by Mechanical Engineering 31.

Precedes or accompanies Mechanical Engineering 72 and 73.

(a) This course is designed to familiarize the student with the use of instruments used in engineering work and with processes of investigation; also to give training in accuracy and reliability in securing data and analyzing results, and in the conducting and reporting of experimental steam and gas engineering work. The experiments involved include, a study of the various auxiliary apparatus used in connection with steam and gas machinery, calibration of instruments such as thermometers, pressure gages, steam and gas engine indicators, etc., tests of elementary power transmission machinery and friction tests of different types of steam and gas engines.

(b) Some time is devoted to developing a familiarity with the use of the level and transit as used in foundation work and shafting alignments. This work will be given by the department of Civil Engineering.

Professors Ludy, Berry, Cole, Munro and Rubenkoenig; Messrs. Bush and Young.

72-73. Mechanical Laboratory.—Sem. 1 and 2. 0 + 6 (4 M)

Must be preceded or accompanied by Applied Mechanics 1 and 2, and Mechanical Engineering 35, 36, and 71.

Precedes or accompanies Mechanical Engineering 41 and 42.

This work covers the following:

(a) Steam boiler tests for determining the evaporative efficiency of boilers of different types under conditions of ordinary use; the determination of the efficiency of steam and power pumps and steam injectors when operated under various conditions.

(b) Tests of simple, compound and triple-expansion engines for the determination of the power developed, the weight of steam used, the interchange of heat between the walls of the cylinder and the contained steam, and the general efficiency of the engine.

(c) Thermal efficiency tests of gas, gasoline and oil engines and automobile motors, tests of gas producers, air compressors and air machinery.

(d) Locomotive tests to determine the indicated and tractive power; steam consumption; boiler temperatures; the quality of the steam delivered by the boiler, and the distribution of the steam in the cylinder. Comparative tests are made for the purpose of ascertaining conditions most favorable in economy for different loads and speeds.

Professors Ludy, Berry, Cole, Munro and Rubenkoenig; Messrs. Bush and Young.

74. Mechanical Laboratory.—Sem. 1. 0 + 6 (4 E)

Accompanies Mechanical Engineering 37.

This course is similar in character to Engineering Laboratory 71.

Professors Ludy, Cole, Berry and Munro; Messrs. Bush and Young.

77. Mechanical Laboratory.—Sem. 1. 0 + 4 (3 C)

Must be accompanied by Mechanical Engineering 33.

This course is similar to Mechanical Engineering 71.

Professors Ludy, Cole and Berry; Messrs. Bush and Young.

78. Mechanical Laboratory.—Sem. 2. 0 + 3 (3 Ch)

Must be preceded by Mechanical Engineering 21.

This course embraces practice in correcting gauges, and checking indicator springs; in the care and manipulation of steam and gas engines, in work in slide valve setting and in the use of the steam engine indicator. Engines are indicated and their power calculated.

Professors Ludy, Berry, Cole and Munro; Messrs. Bush and Young.

81. Seminar.—Sem. 1. 2 + 1 (4 M)

This course consists of oral and written reviews of the important articles in the engineering press, a study of the use of good English as applied to engineering literature; in fact, a course designed to develop the students' ability to think clearly and speak correctly on technical subjects. *Professor Young.*

82. Steam Engine Design.—Sem. 1. 0 + 6 (op. 4 M)

Must be preceded by Applied Mechanics 1 and 2, and Mechanical Engineering 61 and 62.

This work embraces the design of a line of high speed automatic cut-offs and Corliss engines. The work of constructing theoretical diagrams and of determining the leading dimensions of a proposed machine is carried out by each member of the class, after which the details are developed and working shop drawings prepared.

Professors King and Noland.

83. Steam Power Plant Design.—Sem. 2. 0 + 6 (op. 4 M)

Must be preceded by Applied Mechanics 1 and 2, and Mechanical Engineering 61 and 62.

A study of the design and construction of steam power plants for mills, factories or electric generating stations. Original designs are made of condensers, feed water heaters, chimneys, coal handling machinery, and other power station appliances. Opportunity is offered for a detailed study of power plant buildings, coal storage, steam piping and arrangement by completing the design and specifications for a typical plant.

Professors King and Noland.

84-85. Motor Vehicle Design.—Sem. 1 and 2. 0 + 6 (op. 4 M)

Must be preceded by Applied Mechanics 1 and 2, and Mechanical Engineering 61 and 62.

Each part of the mechanism of the motor car engine, running gear and transmission is taken up in detail, the various types are compared and criticised and theoretical and practical formulas and methods are developed for determining all important dimensions. This work is accompanied by talks and discussions bringing out the relations of designs to economical operation and performance of motor vehicles. Each student makes complete working drawings of an automobile, commercial car, truck or tractor and is required to present a comprehensive report showing calculations and considerations underlying his designs. *Professor Berry.*

86-87. Industrial Design.—Sem. 1 and 2. 0 + 6 (op. 4 M)

Must be accompanied by Mechanical Engineering 23 and 24.

The work will be outlined in problem form, designating a definite product and a definite quality of product. This is to be repeated for different products, in order to give an understanding of the problems connected with several lines of manufacture. A route chart and a model will be carefully developed, bearing in mind the important factors of internal transportation, sequence of operations and the general principles of factory despatching of material. A factory layout of the machinery, power and transmission apparatus, heating, lighting and other mechanical equipment will be made in accordance with the route charts, followed by preparing specifications and estimates. Time and motion studies will be made of actual operations and these carefully analyzed. *Professor Rubenkoenig.*

88. Heating and Ventilating Design.—Sem. 1. $0 + 6$ (op. 4 M)

Must be preceded by Applied Mechanics 1 and 2, and Mechanical Engineering 25, 61 and 62.

In this course heating and ventilating systems are designed and laid out according to methods employed in the Heating Engineers' office. Plants are designed for actual buildings, using either architect's plans or plans made by the student from his own survey of existing buildings. Complete specifications and estimates are made up for each job. Before being accepted, each design must be brought up to the point where it would pass with credit in actual practice. *Professor Noland.*

90. Seminar.—Sem. 2. $1 + 0$ (2 M)

The purpose of this course is to acquaint the student with the field covered by Mechanical Engineering. *Professor Young.*

MILITARY TRAINING

Lieutenant Colonel Kirkwood in charge.

Lieutenant Colonel Kirkwood; Majors Maguire, Bryant and Byers; Captains Mahin, Miller and Moore; Sergeant Instructors; Mr. Emrick.

The act of Congress endowing the University requires that Military Science and Tactics be taught. In order to receive the benefits of recent legislation, and to afford an outlet and stimulus for the work, the Military Department is administered as a unit of the Reserve Officers' Training Corps. The course of instruction is both practical and theoretical in Field Artillery service, and is under the direction of an officer of the United States Army, detailed for that purpose, assisted by officers and non-commissioned officers from the Regular Army.

Military Training is compulsory for all physically fit, non-alien, male students of the two lower classes. Excuses are granted only in exceptional cases, and then only in accordance with the published regulations of the Corps of Cadets. Aside from the advantage of military knowledge, the benefits of healthful exercise, strict discipline and the tendency to correct minor physical defects make this course a valuable adjunct to University life.

Under no condition can the members of the Reserve Officers' Training Corps at Purdue be called out for active service. It is an organization fostered by the federal government for instructional purposes only.

The U. S. government will provide each cadet with a complete uniform and the equipment of an Infantry soldier, or money equivalent. To cover any loss or damage of the uniforms, except that due to fair wear and tear, it is required that $15 be deposited with the Bursar at registration. The balance remaining when the student has completed his military instruction or has become separated from the University, will be returned to the student.

The Corps of Cadets is organized as a Regiment of Field Artillery, as prescribed for the Regular Service, i. e., one Band and two Battalions of three Batteries each, with proper Field, Staff, and Battery Cadet Officers. Volunteers from the Junior and Senior classes are given preference in the appointment of Cadet Officers and Cadet Non-commissioned Officers.

Cadets of the Freshman and Sophomore classes who are good musicians will be given preference of assignment to the Cadet Band. Such students will provide their own instruments, and will be required to do work equivalent to that done by cadets of other organizations.

Cadets of the Junior and Senior classes who contract in writing to devote five hours per week to the prescribed course, and to attend two summer camps of four weeks each, will receive compensation from the federal government at the rate of about $12.00 per month and camp expenses. Those who complete the four years' course in a satisfactory manner will be eligible to become Reserve Officers in the United States Army; and will receive upon graduation a special Military Diploma from the University.

1-2. Military Training.—Sem. 1 and 2. 0 + 5 (Fresh: P 1)
The work in these courses includes preliminary training, followed by cannoneer instruction, ordnance, gunnery, motor driving and battery drill, battery organization and administration, military hygiene and sanitation; physical training.

3-4. Military Training.—Sem. 1 and 2. 0 + 5 (Soph: P 2)
The work of the second year includes military topography and orientation; gasoline motors and motor vehicles; physical training.

5-6. Military Training.—Sem. 1 and 2. 3 + 2 (el. Junior)

7-8. Military Training.—Sem. 1 and 2. 3 + 2 (el. Senior)
Of the work during the Junior and Senior years, three hours are devoted to instruction in gunnery and conduct of fire, telephone and radio communication, minor tactics and map maneuvers, military law, military history, military policy of the United States, and general lectures. Two hours are devoted to physical training.

MODERN LANGUAGES

Professor Babson in charge.

Professor Babson; Associate Professors Heiss and Cattell; Assistant Professors Gunn, Greenfield and Greiner; Instructors Sauerhering, Miss Hale, Dr. Spindler and Mr. Wikel.

21-22. Beginning French.—Sem. 1 and 2. 3+0 (op. Fresh; el. 3 A & P)
Required of Freshmen in Science who do not elect to study German 41, 42 or 41a, 42a; electives for students in Science, and electives (if both are taken and if followed by 23 and 24) for Juniors in Agriculture and Juniors or Seniors in Pharmacy.
Precedes French 23 and 24.

The principles of French grammar and syntax are studied and modern prose is read. Stress is laid upon the oral and the written use of the language.
Professor Gunn; Miss Hale and Mr. Sauerhering.

23-24. Intermediate French.—Sem. 1 and 2. 3+0 (op. 2 S; el. 4 A & P)
Required of Sophomores in Science who have already obtained credit in French 21 and 22. Electives (if both are taken) for Seniors in Agriculture and Pharmacy.
Must be preceded by French 21 and 22.

The study of grammar and syntax is continued by means of composition and conversation whereby the foundation of a general vocabulary is laid. Modern prose is read. *Professor Cattell; Miss Hale.*

25-26. Advanced Scientific and Literary French. Sem. 1 and 2. 3 + 0 (el. S)
Must be preceded by French 23 and 24.
Precedes French 27 and 28.

Grammar is reviewed by means of composition and conversation. Prose of the most advanced nature and literary masterpieces are read and talks in French are given on subjects pertaining to French life. The acquirement of an ability to understand spoken French and the attainment of a mature and practical vocabulary are insisted upon. *Professor Cattell.*

27-28. French Literature and Culture.—Sem. 1 and 2. 3 + 0 (el. S)

Must be preceded by French 25 and 26.

Classical and modern authors are read, and lectures are given in French on topics pertaining to the history of French literature and culture. *Professor Cattell.*

31-32. Beginning French for Engineers. Sem. 1 and 2. 3 + 0 (op. 1 Eng.)

Required of Freshmen in Civil, Electrical and Mechanical Engineering who do not elect to study German 51, 52 or 51a, 52a.

Precedes French 33, 34.

Facility and accuracy of translation are sought by means of careful grammatical drill and reading of modern prose. Composition forms an important element in the instruction.

Professors Babson, Heiss, Cattell, Gunn, Greenfield, Greiner; Dr. Spindler; Mr. Sauerhering, Miss Hale.

33-34. Advanced French for Engineers. Sem. 1 and 2. 2 + 0 (op. 2 Eng.)

Required of Sophomores in Civil, Electrical and Mechanical Engineering who have taken French 31 and 32.

Must be preceded by French 31 and 32.

Technical and literary prose is read; stress is laid upon the acquirement of a practical working vocabulary; oft-recurring expressions are constantly emphasized.

41-42. Beginning German.—Sem. 1 and 2. 3 + 0 (op. 1 S; el. 3 A)

The principles of German grammar and syntax are studied and modern prose is read. Stress is laid upon the oral and the written use of the language. *Mr. Wikel.*

41a-42a. Intermediate German.—Sem. 1 and 2. 3 + 0 (op. 1 S)

Required of Freshmen in Science who already have some knowledge of German and do not elect to study French 21, 22; electives (if both are taken under the same condition) for students in Science.

Precedes German 43a and 44a.

The principles of German grammar and syntax are studied in more comprehensive and advanced form than in German 41 and 42. Modern prose is read. Particular stress is laid upon the oral and the written use of the language.

43-44. Intermediate German.—Sem. 1 and 2. 3 + 0 (op. 2 S; el. 4 A)

Must be preceded by German 41 and 42.

Precedes German 45 and 46.

The study of grammar and syntax is continued by means of composition and conversation whereby the foundation of a general vocabulary is laid. Modern prose is read. *Professor Heiss.*

43a-44a. Advanced German.—Sem. 1 and 2. 3 + 0 (op. 2 S)

Required of Sophomores in Science who have already obtained credit in German 41a and 42a.

Must be preceded by German 41a and 42a. Precedes German 45 and 46.

Composition, conversation and advanced reading form the basis of work for the acquirement of a practical knowledge of the language. *Professor Babson.*

45-46. Advanced Scientific and Literary German. Sem. 1 and 2 3 + 0 (el. S & P)

Must be preceded by German 43 and 44, or 43a and 44a.

Precedes German 47 and 48.

Grammar is reviewed by means of composition and conversation. Prose of the most advanced nature and literary masterpieces are read and talks in German are given on subjects pertaining to German life. The acquirement of an ability to understand spoken German and the attainment of a mature and practical vocabulary are insisted upon. *Professor Babson.*

47-48. German Literature and Culture.—Sem. 1 and 2. 3 + 0 (el. S)

Must be preceded by German 45 and 46.

Classical and modern authors are read, and lectures are given in German on the history of German literature and culture. *Professor Babson.*

51-52. Beginning German for Engineers. Sem. 1 and 2. 3 + 0 (Fresh: 2 P)

Required of Freshmen in Chemical Engineering and Sophomores in Pharmacy who have not already studied German. Required of Freshmen in Civil, Electrical and Mechanical Engineering, who have not already studied German and do not elect to study French 31 and 32.

Precedes German 53, 54 and 55, 56.

Facility and accuracy of translation are sought by means of careful grammatical drill, and reading of modern prose. Composition forms an important element in the instruction. *Professor Gunn; Dr. Spindler; Mr. Wikel.*

51a-52a. Intermediate German for Engineers. Sem. 1 and 2. 3 + 0 (Fresh: 2 P)

Required of Freshmen in Chemical Engineering and Sophomores in Pharmacy who have studied German for at least two years. Required of Freshmen in Civil, Electrical and Mechanical Engineering who have studied German for at least two years and do not elect to study French 31 and 32.

Precedes German 53a, 54a and 55a, 56a.

Comprehensive and rapid review of German grammar; reading of modern prose; practice in composition and speaking; the acquirement of a practical vocabulary. *Professors Babson, Heiss, Greiner; Messrs. Sauerhering and Wikel.*

53-54. Advanced German for Engineers. Sem. 1 and 2. 2 + 0 (2 C E M)

Literary and technical prose is read; stress is laid upon the acquirement of a practical working vocabulary. Oft-recurring expressions are constantly emphasized. *Mr. Wikel.*

53a-54a. Advanced German for Engineers. Sem. 1 and 2. 2 + 0 (2 C E M)

Must be preceded by German 51a and 52a.

Literary and technical prose is read, both in kind and amount of a more advanced nature than that required in Courses 53 and 54. Especial attention is given to the acquirement of oft-recurring scientific terms.

55-56. Advanced German for Engineers. Sem. 1 and 2. 3 + 0 (2 Ch; 3 P)

Must be preceded by German 51 and 52.

Precedes German 57.

Literary and technical prose is read, especially that pertaining to Chemistry; stress is laid upon the acquirement of a practical vocabulary. Oft-recurring expressions are constantly emphasized. As opportunity is offered, conversation is practiced. *Professor Greenfield.*

55a-56a. Advanced German for Engineers. Sem. 1 and 2. 3 + 0 (2 Ch; 3 P)

Must be preceded by German 51a and 52a.

Precedes German 57.

Literary and technical prose is read, both in kind and in amount of a more advanced nature than that required in Courses 55 and 56. Especial attention is given to the acquirement of a practical scientific vocabulary. Conversation is practiced. *Mr. Wikel.*

57. Advanced Scientific German for Engineers. Sem. 1. 3 + 0 (3 Ch; el. 4 P)

Must be preceded by German 55 and 56, or 55a and 56a.

Prose selections on chemical subjects are read, grammar is reviewed and conversation is practiced. *Professor Heiss.*

61-62. Beginning Spanish. Sem. 1 and 2 3 + 0 (el. S 3 A & C 4 E & M)

Principles of Spanish Grammar are studied. Correct pronunciation and practice in elementary conversation are required. Simple prose is read, dealing with the social and business life of Spanish-speaking countries. *Mr. Sauerhering.*

PHARMACEUTICAL CHEMISTRY

Professor Jordan in charge.

Professors Jordan and Lee, and Assistant.

8. Qualitative Analysis.—Sem. 2. 2 + 6 (P 1)

Must be preceded or accompanied by Chemistry 1 and 2.

Precedes Pharmaceutical Chemistry 9, 11, 15, and Pharmacy 17, 18; precedes or accompanies Pharmaceutical Chemistry 15a and Materia Medica 7, 8.

A general study of qualitative analysis. The lectures deal with the theories of qualitative analysis and the practical methods of separation and identification of metals and acid radicals, including rules of solubility which form the basis of a scheme of separation for use in the analysis of unknown mixtures.

In the laboratory a number of unknown mixtures, both in liquid and solid form, are analyzed. *Professor Jordan.*

8a. Qualitative Analysis.—Sem. 2. 2 + 6 (op. P)

Alternative with Chemistry 4 for Pharmacy students who have completed Pharmaceutical Chemistry 8.

This course is virtually a continuation of Pharmaceutical Chemistry 8, particular attention being given to the theory underlying the principles of analysis. The lectures deal with the theory of electrolytic dissociation, the law of chemical equilibrium, etc.

Application of this theory is made in the laboratory, together with the analysis of more difficult compounds. *Professor Jordan.*

9. Quantitative Analysis.—Sem. 1. 2 + 6 (P 2)

Must be preceded by Pharmaceutical Chemistry 8 or its equivalent.

Precedes Pharmaceutical Chemistry 12, 17, 18; alternative with Chemistry 5, 6 as prerequisite for Pharmaceutical Chemistry 13 and 14.

General quantitative analysis. The lectures deal with the theories and practical technique of analytical determinations.

In the laboratory, quantitative analyses of compounds are made by both gravimetric and volumetric methods. *Professor Jordan.*

11. Organic Qualitative Analysis.—Sem. 1. 1 + 3 (3 P; P 2)

Must be preceded by Pharmaceutical Chemistry 8 or its equivalent, and accompanied by Pharmaceutical Chemistry 15 or its equivalent.

Precedes or accompanies Pharmacy 17, 18.

This work includes the identification of Medicinal organic compounds by means of qualitative tests. Attention is given to Pharmacopœial purity-standards and to the official tests for impurities. The laboratory work also includes the separation and identification of important alkaloids, toxicology and practical urinary analysis.

Under toxicology the student is called upon to analyze poisoned animal tissue, separating and identifying the added poison. *Professor Jordan.*

12. Drug Assay.—Sem. 2. 1 + 6 (3 P; P 2)

Must be preceded by Pharmaceutical Chemistry 8 or its equivalent.

A quantitative estimation of the active constituents of drugs by pharmacopœial methods; crude drugs, fluid, and solid extracts, tinctures, elixirs, syrups, tablets, pills, etc., are subjected to alkaloidal assay. Determinations are made also of the active constituents of certain volatile oils.

The lectures include a discussion of physiological methods of drug assay.

Professor Jordan.

13-14. Food and Drug Analysis.—Sem. 1 and 2. 1 + 6 (4 P)

Must be preceded by Chemistry 5 and 6, or Pharmaceutical Chemistry 9, and by Pharmaceutical Chemistry 15.

A general study of the analysis of foods and drugs. The lectures deal with methods used by the U. S. Government and other standard methods of analysis.

In the laboratory milk, butter, fats, oils, meats, vinegar, canned goods, baking powders, extracts, etc., will be subjected to chemical analysis with special attention given to the detection of adulterants and impurities. Chemical analysis is supplemented by the use of microscope, polariscope, and refractometer whenever applicable.

Professor Jordan and Assistants.

15. Organic Chemistry.—Sem. 1. 4 + 0 (2 P; P 2)

Must be preceded by Pharmaceutical Chemistry 8 or its equivalent.

Precedes Pharmaceutical Chemistry 13, 14, 17 and 18; precedes or accompanies Pharmacy 15a, 17, 18, Materia Medica 7, 8, and Pharmaceutical Chemistry 11.

These lectures deal with the principal classes of organic compounds, their theoretical structure and class reactions. Special attention is given to those organic compounds that are of medicinal importance. *Professor Jordan and Assistant.*

15a. Organic Chemistry.—Sem. 2. 2 + 6 (2 P)

Must be preceded, or accompanied by Pharmaceutical Chemistry 8, or its equivalent, and preceded by Pharmaceutical Chemistry 15 or equivalent.

Advanced organic theory with laboratory preparation of aliphatic and aromatic compounds of the more important types. Medicinal organic synthetics will receive especial attention. Certain analin dyes will also be produced and studied.

Professor Jordan and Assistant.

16. Pharmaceutical Research.—Sem. 1 or 2. 2 + 6 (el. P)

In this course the student is given an opportunity to do special work in Pharmaceutical Chemistry, Pharmacy, or Materia Medica. Difficult pharmaceutical problems will be attacked under the careful guidance of the professor in charge. The recommendation of the department is necessary for assignment to this course.

Professors Jordan and Lee.

17-18. Physiological Chemistry.—Sem. 1 and 2. 1 + 3 (el. P)

Must be preceded by Pharmaceutical Chemistry 9 and 15.

Lectures and practical training are given in those lines, exclusive of bacteriology, which are essential to the physician's correct diagnosis, the details of which are being asked more and more of the competent pharmacist.

Important features of the laboratory work include thorough drill on chemical and microscopic urine analysis, direct and differential blood counts, spectroscopic tests for various pathologic hemoglobins, blood tests and stains, hemolysis studies, gastric analysis, enzymes and their estimation, protein and protein-derivative testing and toxicological studies. *Professor Jordan and Assistant.*

PHARMACY

Professor Jordan in charge.
Professors Jordan and Lee.

The courses administered by the Department of Pharmacy are classified under three main heads: Materia Medica (see page 120); Pharmaceutical Chemistry (see page 132); and Pharmacy as listed below.

11-12. General Pharmacy.—Sem. 1 and 2. 2 + 4 (1 P; P 1)

Precedes Pharmacy 17 and 18.

This course consists of lectures, recitations, assignments and quizzes dealing with the theory and practice of pharmacy. The laboratory work is designed to acquaint the student with apparatus and with such fundamental properties of substances as specific gravity, melting points, boiling points, solubilities, etc. During the course each student is required to make at least one hundred U. S. Pharmacopœia and National Formulary preparations. These products are of so varied a nature as to involve all the factors of pharmaceutical technique. *Professor Lee.*

17-18. Pharmacy and Prescription Practice. Sem. 1 and 2. 1 + 3 (4 P; P 2)

Must be preceded by Pharmacy 11 and 12, and Pharmaceutical Chemistry 8 or its equivalent, and preceded or accompanied by Pharmaceutical Chemistry 11 or 15.

Precedes or accompanies Pharmacy 26.

(a) This course is a presentation of the fundamental principles regarding the filling of prescriptions, with emphasis upon incompatabilities. Our files contain a wide variety of prescriptions taken from stores throughout the State of Indiana. These are used for study and prescription practice.

(b) Prescriptions written by the University Physician for the students are filled in the dispensing laboratory under the direction of a registered pharmacist. This service gives our students actual practice in compounding prescriptions. Due attention is given to the statutes of Indiana governing the filling and labeling of prescriptions.

(c) The course also gives consideration to the preparation of toilet articles, disinfectants and other extemporaneous products. In all this work the acquisition of manipulative skill and laboratory technique is an important feature. *Professor Lee.*

19. Pharmaceutical Jurisprudence.—Sem. 2. 1 + 0 (4 P; P 2)

The lectures deal in a practical way with pharmacy legislation, and with the special legal responsibilities of the pharmacist. The subjects of banking, collections, partnership and corporations, leases, fire insurance policies and, in general, subjects bearing on the business aspect of pharmacy, receive attention.

Professor Jordan or Assistant.

25. Commercial Pharmacy.—Sem. 1. 3 + 0 (4 P; P 2)

This course is designed to present the professional and commercial aspects of Pharmacy in their relations to the problems of the modern pharmacist. The following are a few of the general subjects considered: Planning and arranging a Pharmacy; Advertising; Salesmanship; Insurance; Side Lines; Compounding of Prescriptions; Clerks; Managers; State Boards of Pharmacy and their Requirements; Laws Regulating the Practice of Pharmacy; Professional and Business Ethics.

Professor Lee.

26. U. S. Pharmacopoeia and National Formulary. Sem. 2. 3 + 0 (4 P; P 2)

Must be preceded or accompanied by Pharmacy 17 and 18.

A critical review of the U. S. Pharmacopœia and National Formulary and a study of recent scientific contributions to pharmaceutical literature. *Professor Lee.*

27. Pharmaceutical Arithmetic.—Sem. 1. 2 + 0 (1 P; P 1)

This is a systematic course of instruction, dealing with the mathematical calculations incident to practical pharmacy and dispensing. *Professor Jordan.*

28. Pharmaceutical Latin.—Sem. 2. 1 + 0 (1 P; P 1)

The course is a study of Latin as applied to Pharmaceutical nomenclature and the Latinization of pharmaceutical and chemical terms. The course also includes the study and interpretation of Latin and Latin abbreviations used in physicians' prescriptions. *Professor Lee.*

PHYSICAL EDUCATION

Professor Cutts in charge.

Professor Cutts; Messrs. Lambert and O'Connor.

This department has supervision over the recreational and athletic life of the University and administers instruction in physical exercise, sports and games, in which all students not physically disqualified are expected to participate. It promotes general as well as specialized athletics and aims to raise the standard of the whole physical life of the University. The advice and instruction of trained specialists in all branches of physical sport are available to all students, whether engaged in Intercollegiate Athletics or not.

The work of the year is divided into three seasons, outdoor, indoor, and outdoor, as follows:

I. Outdoor Work.—September to November.

Football; Baseball; Track and Field Athletics; Tennis; Handball; Canoeing; Swimming; Walking; Golf; Cross-Country Running; Hare and Hounds.

The work is organized to permit women students to participate in group activities, under the direction of the Dean of Women. One hour per week is required of all men during the first three years.

Physical examinations are required for all first year men and for every man taking part in Intercollegiate Athletics.

II. Indoor Gymnasium Work.—November to April.

Five minute talks on personal hygiene; Breathing and Setting-up Exercises; Body Building; Calisthenics; Track and Field Athletics; Gymnastics; Games; Volley Ball; Fencing; Wrestling; Basket Ball; Handball; Football; Swimming; Walking; Skating and Ice Hockey.

The work is organized as follows: For the women students, one evening and one morning hour per week. For Freshmen and Sophomores, one hour per week. For Juniors taking Military Training in the R. O. T. C. full credit is allowed. For all others one hour per week.

Physical examinations are required for every man taking part in Intercollegiate Athletics.

III. Outdoor Work.—April to June.

Baseball; Track and Field Athletics; Tennis; Golf; Football; Walking; Handball; Swimming; Hare and Hounds; Canoeing.

The work is organized in the same way as in the Fall Outdoor Season indicated above.

Physical Examinations are required for every man taking part in Intercollegiate Athletics.

In General.

The work of this department is conducted in close co-operation with the Department of Military Training and due allowance is made for physical training obtained in connection with drill.

All University students must be able to swim before they will be considered eligible for graduation. Such requirements may be varied, with regard to sex and other conditions.

All classified students except Seniors in the University must obtain one credit in physical education during the college year. The requirements for such credits are elastic and are made with due allowance for the preferences of the students and varying local conditions and opportunities.

PHYSICS

Professor Ferry in charge.

Professor Ferry; Associate Professor C. M. Smith; Assistant Professor Sherman; Instructors Mitchell and Penrod.

1. General Physics.—Sem. 1. 4 + 0 (2 Ch & E; el. S)

Must be preceded by Mathematics 1 and 2.

Precedes Applied Mechanics 2; Electrical Engineering 1, 2, 5, 6, and 34; Mechanical Engineering 31; precedes or accompanies Mechanical Engineering 11; and Physics 2, with all advanced courses in Physics.

Professors Ferry, Smith and Sherman; Miss Mitchell and Mr. Penrod.

2. General Physics.—Sem. 2. 4 + 0 (2 Ch & E; el. S)

Must be preceded by Mathematics 1, 2, and Physics 1.

Precedes Civil Engineering 9, 10; Electrical Engineering 5, 6, 9 and 10; prerequisite for all other courses in Physics, except Physics 1a and 2a; precedes or accompanies Mechanical Engineering 31

This line of study includes a systematic development of principles together with a consideration of the practical applications of the principles to the affairs of ordinary life. It is the first line of study in Physics for students who are preparing to teach the subject.

Professors Ferry, Smith and Sherman; Miss Mitchell and Mr. Penrod.

1a-2a. General Physics— Sem. 1 and 2. 3 + 0 (2 C & M; 2 A S P) Briefer Course.

Required of Sophomores in Science and Agriculture and Juniors in Pharmacy, who have not presented Physics for entrance.

Course 1a is prerequisite for Physics 3a.

Courses 1a and 2a precede Electrical Engineering 19, 20, 39 and are alternative with Physics 1 and 2 as prerequisite for all advanced courses in Physics.

This is a brief descriptive line of study designed to give the student a familiarity with the principal facts and laws of Physics, together with the basis and significance of the important theories of the subject. It is not designed to meet the requirements of students expecting to teach Physics.

Professors Ferry, Smith and Sherman; Miss Mitchell and Mr. Penrod.

3. Physics Measurement.—Sem. 2. 0 + 4 (2 E; el. S)

Must be preceded by Physics 1.

Precedes or accompanies Mechanical Engineering 37.

This course is devoted to the measurement of density, coefficient of friction, coefficient of elasticity, properties of thick lenses, magnifying power of telescopes, etc.

Professor Sherman; Miss Mitchell and Mr. Penrod.

3a. Physics Measurement—Briefer Course.—Sem. 2. 0 + 2 (2 C)

Must be preceded by Physics 1a.

This course is similar to Physics 3 except that it includes but one-half the number of experiments. *Professor Sherman; Miss Mitchell and Mr. Penrod.*

4. Sound.—Sem. 1. 1 + 5 (el.)

Must be preceded by Physics 1 and 2.

A course in acoustic measurements including the determination of wave lengths, frequencies, velocities and loudness of simple sounds, and the analysis of the compound vibrations of sounding bodies. The methods for the determination of the acoustic properties of buildings and the method of improving them are also considered.

Professor Sherman.

5. Heat.—Sem. 1. 0 + 5 (3 M; el. S)

Must be preceded by Physics 1 and 2, or 1a and 2a.

Precedes or accompanies Mechanical Engineering 25, 26, and 27.

This course includes a study of the errors of a thermometer, a study of the law of cooling, radiation corrections, and the determination of such thermal qualities as the maximum vapor pressure of water at different temperatures, coefficient of expansion, heat value of fuels, specific heat, heat equivalents of fusion and vaporization, the mechanical equivalent of heat.

Professor Sherman; Miss Mitchell, and Mr. Penrod.

6a. Electrical Measurements—Briefer Course. Sem. 2. 2 + 4 (3 Ch; el. S)

Must be preceded by Physics 1 and 2, or 1a and 2a.

Professor Smith and Mr. Watson.

6. Electrical Measurements.—Sem. 1. 2 + 5 (3 E; el. S)

7. Electrical Measurements.—Sem. 2. 0 + 5 (3 E; el. S)

Must be preceded by Physics 1 and 2, or 1a and 2a.

In the lectures the theory of electrical measurements and of electrical measuring instruments is thoroughly developed. The laboratory work includes the calibration of measuring instruments and the measurement of the resistance of dielectrics, electrolytes, and solid conductors; large and small currents; high and low potentials, capacity, inductance, magnetic properties of iron. *Professors Smith and Sherman.*

9. Experimental Physics.—Sem. 1. 2 + 6 (el. S)

Must be preceded by Physics 1 and 2, or 1a and 2a.

Precedes Physics 10 and 11.

Recitations on light. Laboratory work on general physics measurements and light. *Professor Sherman.*

10. Experimental Physics.—Sem. 2. 2 + 6 (el. S)

Must be preceded by Physics 9.

Recitations and laboratory work on electricity and magnetism.

Professor Sherman.

11. Industrial Optics.—Sem. 2. 2 + 6 (el. S)

Must be preceded by Physics 9.

The laboratory work includes the use of the optical bench, the photometer, the interferometer, polarimeter, the spectroscope, and the spectrophotometer.

Professor Ferry.

12. Radiation and High Temperature Measurement. Sem. 1. 1 + 5 (4 Ch)

Must be preceded by Physics 1, 2 and either 6 or 6a.

A course in the measurement of high temperature by resistance, thermo-electric, radiation and optical methods. *Professor Sherman*

13-14. Theoretical Physics.—Sem. 1 and 2. 3 + 0 (el. S)

Must be preceded by Mathematics 15 and 16, or their equivalent, and by at least one elective in Physics.

A course in Kinetics and Dynamics, in which Barton's Analytical Mechanics is used as a text. *Professor Ferry or Staff.*

16. Wave Motion.—Sem. 2. 3 + 0 (op. 4 E)

The fundamental equations of simple harmonic motion and wave motion are developed, and illustrations are drawn from dynamics, sound and electromagnetic phenomena. This is followed by a treatment of wave distortion, interference, resonance and damping, with particular reference to electromagnetic waves through space and along conductors. *Professor Smith.*

19-20. Theoretical Physics.—Sem. 1 and 2. 3 + 0 (el. S)

Must be preceded by Mathematics 15 and 16, or their equivalent, and by Physics 5 and 12 or 12a.

A course in Thermodynamics, in which are used the text books of Buckingham, Partington and Planck. *Professor Ferry or Staff.*

21-22. Theoretical Physics.—Sem. 1 and 2. 3 + 0 (el. S)

Must be preceded by Mathematics 15 and 16, or their equivalent, and by Physics 9.

A course in Theory of Light, in which Drude's Theory of Optics is used as the text. *Professor Ferry or Staff.*

23-24.—Theoretical Physics.—Sem. 1 and 2. 3 + 0 (el. S)

Must be preceded by Mathematics 15 and 16, or their equivalent, and by Physics 10, or 6 and 7.

A course in Theory of Electricity and Magnetism, using as text Jean's Electricity and Magnetism. *Professor Ferry or Staff.*

25-26. Special Physics Laboratory Work.—Sem. 1 and 2. 2 + 6 (el. S)

Must be preceded by Physics 1a and 2a, or 1 and 2, together with at least one laboratory course in Physics.

Applicants must satisfy the Department as to their preparation for the work proposed. *Professor Ferry or Staff.*

POULTRY

Professor Philips in charge.

Professor Philips; Instructors Schwartz and Kennard.

1. Poultry Production.—Sem. 1 or 2. 2 + 2 (1 A)

Precedes Poultry 2 and 5.

This course treats of the breeds and types of poultry; the principles of breeding and mating of fowls; incubation and brooding; feeding for growth and egg production; caponizing, fattening, and marketing poultry; winter and summer management; brooders, houses, and appliances; sanitation; diseases, parasites and their treatment. The laboratory work takes up the nomenclature of poultry; class, breed, variety, age, sex and vigor characteristics; fancy and utility judging, grading, packing and candling eggs, study of the egg, scoring farms; studying poultry house construction and other practical management exercises.

Professor Philips; Messrs. Schwartz and Kennard.

2. Poultry Production.—Sem. 2. 2 + 4 (el. A)

Must be preceded by Poultry 1.

The course treats of the problems of incubation, brooding, marketing, diseases and management. The laboratory work consists of testing and grading eggs; managing incubators and brooders morning and evening on the farm. This is a continuation of Poultry 1. *Mr. Kennard.*

5. Selection, Breeding and Housing.—Sem. 1. 3 + 4 (el. 3 A)

Must be preceded by Poultry 1.
Precedes Poultry 6.

This course takes up the principles and methods of housing; origin and history of breeds; breeding and mating for fancy and utility. The laboratory work consists of planning, estimating, and building poultry houses and appliances; judging all the leading varieties from the fancy and utility standpoints, conditioning, washing and preparing birds for show and carrying on a poultry show. *Mr. Schwartz.*

6. Incubation and Brooding.—Sem. 2. 3 + 4 (el. 3 A)

Must be preceded by Poultry 5.
Precedes Poultry 7.

The lecture and recitation work takes up the principles and practical applications of the laws of incubation and brooding and a study of the construction and principles involved in the different makes of incubators and brooders. The laboratory work has no scheduled hours, but is devoted to the running of incubators and brooders.

Mr. Kennard.

7-8. Marketing.—Sem. 1 and 2. 1 + 2 (el. 4 A)

Must be preceded by Poultry 6.
Precedes Poultry 9.

The class work takes up the fundamental laws and economic development of marketing eggs and market classification and demands; methods of grading; packing; shipping and storing poultry and eggs for market; including conditions influencing same. The laboratory work consists in killing; picking; grading; packing and shipping poultry; and testing; grading; packing; and storing eggs.

Professor Philips; Mr. Schwartz.

9-10. Feeding, Care and Management.—Sem. 1 and 2. 3 + 3 (el. 4 A)

Must be preceded by Poultry 8.

The class work takes up (a) the principles and practical applications of feeding chicks, laying hens, and fattening poultry; (b) diseases, parasites and sanitation; (c) general management of poultry and its products; the planning, equipping, stocking and operating for one year of a poultry farm on paper. The laboratory work consists of (a) planning, conducting, compiling and writing up the data on a fattening demonstration; (b) anatomy of birds; diagnosis; treatment and post mortems of birds affected with common diseases; and sanitation; (c) feeding a flock of laying hens.

All laboratory work will be done mornings and evenings on the poultry farm or at appointed hours. *Professor Philips; Messrs. Schwartz and Kennard.*

PRACTICAL MECHANICS

Professor Hoffman in charge.

Professors Hoffman, Turner and Trueblood; Assistant Professor Golden; Instructors Bushnell, Gregg, Haag and Keller; Assistants Britton, Brelsford, Chadbourne, Dexter, Dietrich, Falley, Miller, Nutt, Pertz, Striz, Tumey, Vellinger, Wendt, and Wunderlee.

11. Mechanical Drawing I.—Sem. 1. 0 + 6 (1 Eng; op. 1 S)

(a) Lettering, freehand drawing, and the elements of projection and mechanical drawing.

(b) Drawing from copy and model, and the reproduction of machine detail sketches.

(c) Occasional talks, tests and lectures on mechanical drawing subjects.

Professors Hoffman and Golden; Messrs. Bushnell, Brelsford, Britton, Chadbourne and Stitz.

12. Mechanical Drawing II.—Sem. 2. 0 + 6 (1 Eng; op. 1 S)

(a) Drawing of machines from sketches and descriptions.

(b) Machine sections, and problems in the development of irregular surfaces and magnitudes.

(c) Occasional talks, tests and lectures on mechanical drawing subjects.

Professors Hoffman and Golden; Messrs. Bushnell, Brelsford, Britton, Chadbourne and Stitz.

21. Shop Work I.—Sem. 1 or 2* 0 + 8 or 9 (1 C E M)

Required of Freshmen in Civil Engineering, eight laboratory hours per week, and of Freshmen in Electrical and Mechanical Engineering, nine laboratory hours per week.

Precedes Practical Mechanics 23.

Exercises in wood working, including bench and lathe work, and the use of wood working machines.

Professor Trueblood; Messrs. Dietrich, Gregg, Falley and Wunderlee.

22. Shop Work II.—Sem. 1 and 2.* 0 + 8 or 9 (1 C E M)

Required of Freshmen in Civil Engineering, eight laboratory hours per week, and of Freshmen in Electrical and Mechanical Engineering, nine hours per week.

Exercises in foundry work, including molding, core making, the management of the cupola furnace and the crucible furnace in melting iron and brass, and the use of the molding machine.

Messrs. Wendt, Tumey and Miller.

22a. Shop Work III.—Sem. 1 or 2.* 0 + 6 (1 Ch)

Exercises in foundry work, including molding, core making, the management of the cupola furnace and the crucible furnace in melting iron and brass, and the use of the molding machine. *Messrs. Wendt, Tumey and Miller.*

23. Shop Work IV.—Sem. 1 or 2.* 0 + 9 (1 E & M)

Must be preceded by Practical Mechanics 21.

Exercises in pattern making.

Professor Trueblood; Messrs. Dietrich, Gregg, Falley and Wunderlee.

24. Shop Work V.—Sem. 1 or 2.* 0 + 6 or 8 (1 Ch & C; 2 E & M)

Required of Freshmen in Civil Engineering, eight hours per week; of Sophomores in Mechanical and Electrical Engineering, six hours per week; and of Freshmen in Chemical Engineering, six hours per week.

(a) Exercises in forging iron and steel.

(b) Tool forging, tempering, annealing and case hardening.

(c) Heat treatment of metals. *Messrs. Keller and Pertz.*

25. Shop Work VI.—Sem. 1 or 2.* 0 + 6 (1 Ch; 2 E & M)

Must precede Practical Mechanics 26.

(a) Bench and vise work in metal, including chipping, filing and fitting.

(b) Machine tool work in metals, including exercises in turning, planing, threading, drilling, boring, milling and fitting.*

Professor Turner; Messrs. Haag and Vellinger.

26. Shop Work VII.—Sem. 1 or 2.* 0 + 6 (2 E & M)

Must be preceded by Practical Mechanics 25.

Machine tool work, grinding, gear cutting, tool and jig making. Practice is given in building and erecting complete machines and appliances.

Professor Turner; Messrs. Haag and Vellinger.

41-42. Shop Work VIII.—Sem. 1 and 2. 2 + 6 (el. S)

This line of study is arranged for those who wish preparation for teaching in manual training schools. It is administered in connection with the Department of Education. *Professor Trueblood.*

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* For twelve weeks.

ADVANCED DEGREES CONFERRED

MASTER OF SCIENCE

Mabel Leaming, B. S.	Otterbein
Bessie Belle McCaulay, B. S.	Hoopeston, Illinois
Charles Edgar Montgomery, B. S. Ed.	DeKalb, Illinois
Anna Cecelia Nichols, B. S.	Chicago, Illinois
James Leonard St. John, B. A.	Urbana, Illinois
Emma Louise Schurmann, B. S.	LaFayette
Benjamin Leslie Souther, B. S. Ch.	Ashland, Oregon

MASTER OF SCIENCE IN AGRICULTURE

Frank Churchill Beall, B. S. A.	LaFayette
Howard Wilber Gregory, B. S.	LaFayette
Lillo Holly Hauter, B. S. A	Santa Fe, New Mexico
Moses Abraham Jacobson, B. S. A.	LaFayette
Edward Franklin Johnson, B. S. A.	Columbus, Ohio
Robert Austin Lamson, B. S. A.	LaFayette
William Robert Mills Scott, B. S. A.	LaFayette

CIVIL ENGINEER

Burgess Buell Brier, B. S. C. E.	Memphis, Tennessee
Anderson Edward Duckwall, B. S. C. E.	Scottdale, Pennsylvania
Paul James McAllister, B. S. C. E.	Philadelphia, Pennsylvania
Harry Vernon Wenger, B. S. C. E.	Indianapolis
David Walter Williams, B. S. C. E.	East Chicago
Lienchun Yen, B. S. C. E.	Shanghai, China

ELECTRICAL ENGINEER

Horace W. Asire, B. S. E. E.	Washington, D. C.
Earl Logan Carter, B. S. E. E.	Marion
Grayson Bell McNair, B. S. E. E.	Colorado Springs, Colorado
Victor Thomas Mavity, B. S. E. E.	Cincinnati, Ohio
Frank Joseph Strassner, B. S. E. E.	Newark, New Jersey

BACCALAUREATE DEGREES CONFEERRED

BACHELOR OF SCIENCE

In General Science

Eva Florence Abbott	West LaFayette
Everett Lewis Austin	West LaFayette
Marjorie Beall	Clarksburg
Harriet Farnsworth Benjamin	Crown Point
Helen June Bosard	West LaFayette
Valley Virginia Boyer	LaFayette
Margaret Briggs	LaPorte
Mary Jane Catherwood	LaFayette
Fay Frances Cook	Mulberry
Helen Eldridge	Indianapolis
William Frederick Epple	Fort Wayne
Loyal Witherow Fisher	Rossville
Norman Virgil Geyer	Monroeville
Edna Carrie Harris	LaFayette
Helen Virginia Hendey	Vincennes
Nora Iddings	Peru
Aura Inez Keever	Kempton
Estella Kimmel	LaFayette
Harriet Avanelle Klepinger	LaFayette
George Leopold Kunkel	LaFayette
Emma Maude Loveless	Clarks Hill
Morris Elmer McCarty	LaFayette
Elta Bliss Maple	Terhune
John Simeon Matthews	Madison
Helen Katherine Mavity	Noblesville
Hazel Emma Miller	West LaFayette
Karl Theodore Nessler	Indianapolis
Charlotte Irene Peckinpaugh	Muncie
Hazel Irene Plummer	French Lick
Helen Ernestine Rogers	West LaFayette
Olga Marie Russell	West Baden
Dolly Mabel Schlosser	Bremen
Bulis Reba Seed	Bridgeport, Illinois
Effie Florence Shilling	Knox
Geneva May Smith	LaFayette
Irene May Smith	Carlisle
Maude Ura Felknor Smith	West LaFayette
Reba Janett Smith	Logansport
Edith Lisetta Steffen	LaFayette
Vaneta Thomas	Fortville
Effie Clara Thompson	Danville
Ethel Tressia Vandivier	Clay City
Crete Elizabeth Warnock	West LaFayette
Roxana Zerfas	Frankfort

BACHELOR OF SCIENCE

In Agriculture

Horace Emerson Abbott	Martinsville
John Carroll Abbott	Elmira, New York
Jesse Harold Anderson	Noblesville
Charles Cedric Baker	Waynetown
Virgil Jay Banter	Van Buren
Karl Reed Becker	Rochester

Harvey Earl Behlmer	Batesville
Harry Peede Benbow	Anderson
George Benson	Whiting
George Abraham Branaman	Bedford
Benjamin Thomas Brother	French Lick
Sumner Jenks Brown	Dana
Riley Leander Case	Wolcottville
Hamilton Banks Collings	Rockville
Merl King Cue	Frankfort
Harley Ernest Deardurff	Brook
Morris Kirkwood Derrick	Michigantown
Hubert Westcott Fleisher	Kendallville
Charles Muerl George	Waterloo
Wilbur George Giltner	West LaFayette
John Adams Girard	Idaville
Marcus Lawrence Gossard	Kempton
Raymond Russell Grames	Oxford
Raymond William Gregory	Mooresville
Glenn Willard Grove	Jamestown
Robert Louis Hammond	Indianapolis
Herbert Lybrook Hart	Kitchel
Charles Russell Hoffer	Grovertown
Leroy Hoffman	Millersburg
John Frederick Holmes	LaFayette
Russell Samuel Hook	Pimento
Robert Jackson Hosmer	LaPorte
Charles Dale Huff	Argos
Harry Carson Jacobs	West LaFayette
John Harrington Kennedy	Oxford
Herbert Lemuel Kitsmiller	Romney
Herbert Von Knight	Zanesville
Merrill Blaine Kroft	Greensburg
Jesse H. Lefforge	Oaklandon
Cornelius Harold Libbert	Aurora
Walter Hamilton Lloyd, Jr.	Valparaiso
Forrest Draper McCrea	New Richmond
Joseph Frank McMullan, Jr.	Burnetts Creek
Wilbur William Magill	Franklin
Oran Wesley Mansfield	Muncie
Willard Hungate Martin	Salem
Harold Mertz	Burnetts Creek
Perry Robert Mills	Roanoke
Frank Marshall Moorman	Cincinnati, Ohio
Russel John Mourer	Idaville
Hubert Max Mullendore	Franklin
Ira Isaac Myers	Brookston
Raymond Andrew Nehf	Terre Haute
Milo Albion Nye	West LaFayette
John Olmstead	Evansville
Victor Ray Phares	Fort Wayne
Maxwell Jennings Plice	Markle
James Lloyd Pool	Fort Wayne
Gerald Greenlee Reed	Logansport
Raymond Merl Roop	Syracuse
Ransom Francis Sawin	Edinburg
Vergil Schwarzkopf	Muncie
Merritt Lane Shearer	Wawaka
Arthur Carl Shideler	Huntington
Fay Stevens	Springfield, Missouri
Ernest Merle Stoops	Terhune
Maurice Craig Taylor	Howe
Richmond William Terrell	Kokomo

John Francis Trost	Indianapolis
James Kenneth Waugh	Columbia City
Frank William Wesler	Batesville
John Calvin White	West LaFayette
James Clark Young	Logansport
Jesse Griffith Zimmerman	Noblesville

BACHELOR OF SCIENCE
In Mechanical Engineering

Herbert Franklin Arnold	Goshen
Louis Daniel Atkins	Evansville
Paul Pitcher Barger	West LaFayette
Murray Ward Barnell	West LaFayette
Samuel Thornton Beeker	Battle Ground
Conrad Leodore Brosseau	Kankakee, Illinois
Samuel Marcus Buchin	Chiguirin, Russia
Elba Earl Campbell	LaFayette
Hoy Chan	Victoria, Canada
Clayton Ira Eshleman	Wakarusa
Carl William Giltner	West LaFayette
Frank Hockema	West Point
William McKinley Hutchinson	Clarence, Illinois
John Fletcher Jenks	Shelbyville
Francis Oscar Jordan	West LaFayette
Oscar William Kastens	Dayton, Ohio
Claude Samuel Kegerreis	Bristol
George Andrew Kramer	Indianapolis
George Metzger Kriegbaum	Warren
Edward McBurney	Palm City, California
Gordon Edgar Milliken	Poughkeepsie, New York
George Gilbert Mize	Indianapolis
Harold Nevins Parkinson	Milwaukee, Wisconsin
Marshall Elliott Powell	Shelbyville
James Chapman Riely	New Albany
John Ralston Roberts	New Albany
Atanasio Sanchez Pena	Monterey, Mexico
Frederick Frank Schwilk	LaFayette
Paul Lester Shryock	Greenwood
Russell Seely Sink	Montmorenci
Howard Malcolm Snapp, Jr.	Joliet, Illinois
Gilbert Louis Stitz	LaFayette
Donald Campbell Storm	Sandusky, Ohio
Leslie Clifford Weishaar	Kentland
Nelson Frederick Wetzel	East Columbus
Keh Yung Young	Yunnanfu, China

BACHELOR OF SCIENCE
In Civil Engineering

John Wilson Barber	Anderson
William Francis Boone	Clarksville, Missouri
William Max Borgwardt	Leavenworth, Kansas
Herbert Haqvin Brehmer	Chalmers
Max Edgar Bremer	Toledo, Ohio
William Claude Briggs	Geneva
Sultan Gabriel Cohen	Indianapolis
Edwin Russell Hawkins	Huntington
Choa Chie Kie	Honan Province, China
Luster Ray Kleinknight	Ossian
David Koo	Kiating, Kiang Su, China
Kuo-chun Li	Pekin, China

CARL LYMAN	INDIANAPOLIS
RUFINO MARTINEZ	ILOILO, PHILIPPINES
RICHARD NAEF	WHITING
CHESTER HARRISON NEWMAN	SOUTH BEND
HERMAN SAENZ	MEDELLIN, COLOMBIA
COLEMAN RUSSELL SAMPLE	HARTFORD CITY
HENRY CHARLES SCHENLER	JEFFERSONVILLE
GEORGE IRVIN SEYBERT	HOWE
HARRY D'ARCY TONG	SHANGHAI, CHINA
UPSHUR FARRINGTON TURPIN	FORT DODGE, IOWA
JAMES GELSTON WOODBURN	BLOOMINGTON

BACHELOR OF SCIENCE

In Electrical Engineering

MILTON DAY BAUGHMAN	COSHOCTON, OHIO
ROY WILBUR BURNS	INDIANAPOLIS
TSUNG YAO DEANE	TIENTSIN, CHINA
WILLIAM BURL DEFFENDALL	WASHINGTON
LEROY EARL DONELSON	UPLAND
LEON HALE EMRICK	WEST LAFAYETTE
REED WALDO GARMAN	KEWANNA
HERBERT WILLIAM GRAYBROOK	NEW ALBANY
STANLEY STIVER GREEN	TRINIDAD, COLORADO
HAROLD GEORGE GUSCHING	FORT WAYNE
CHARLES BEAMER HAVENS	LADOGA
DORLAND JOHN HENDERSON	INDIANAPOLIS
CLYDE HOOD	MARION
KENNETH BOWEN JOHN	GREENVILLE, OHIO
CLIFFORD BURTON KINLEY	DEEDSVILLE
LAURICE LAIRD LOCKROW	MILWAUKEE, WISCONSIN
EMERY LOVE	BEDFORD
JOHN MASON NAYLOR	MILLVILLE, NEW JERSEY
GRAYSTON LEROY OHMART	COLUMBIA CITY
FRANCIS LEE PAVEY	FRANKFORT
LAWRENCE JAMES PERRIN	WEST BADEN
ROBERT EDWIN PIERCE	INDIANAPOLIS
KENNETH ARA RARICK	REDKEY
WALTER BRABROOK ROWLAND	INDIANAPOLIS
LEONARD LAFONTAINE RUGGLES	JOLIET, ILLINOIS
EUGENE SIDNEY SCHWEIG	ST. LOUIS, MISSOURI
RAYMOND THOMAS SMITH	CINCINNATI, OHIO
JULIUS HERMAN STAAK	FORT WAYNE
KARL WILLIAM STEINKAMP	JASPER
EDWARD KERTH STOCKER	EVANSVILLE
THAYNE SMITH WILLIAMS	MT. VERNON
JOHN JAMES CARRIGER YORN	INDIANAPOLIS
MANVEL KEEPORT ZINN	INDIANAPOLIS

BACHELOR OF SCIENCE

In Chemical Engineering

EARL HOBART ALLEN	WEST LAFAYETTE
ROY CHARLES BROMELMEIER	FORT WAYNE
WILLIAM EDWARD CHANDLER	HARTFORD CITY
LEONARD HAMILTON CRUDDEN	WEST LAFAYETTE
WILBUR KENNETH DODD	LOGANSPORT
HOWARD RUSHER DOSWELL	FORT WAYNE
ISADORE WILFRED GREENGARD	MANDON, NORTH DAKOTA
JOSEPH HILLIARD LEWIS	ELMIRA, NEW YORK
DONALD LOUIS MCCOLLUM	MISHAWAKA
ALVIN EARL MCDOUGALL	NOBLESVILLE

John Kenneth Speicher	Greenville, Ohio
Raphael Lewis Stern	Madison
Everton Emerson Stidham	West LaFayette
Lauren Harding Sult	Plymouth
Welker Wallace Wentz	Fort Wayne
David Roscoe Wiggam	West LaFayette

BACHELOR OF SCIENCE

In Pharmacy

Thomas Leonard Hasbrouck	Terre Haute
George Franklin Strickfaden	Noblesville

PHARMACEUTICAL CHEMIST

Reubin Eller Burrin	Advance
Thomas Leonard Hasbrouck	Terre Haute
Carl Alvin Hynds	Sandborn
Bert Paul Lockhard	Linton
Victor Paul Meagher	Terre Haute
John Reed Phillips	Star City
Warren Bayard Purkey	Morocco

MILITARY SCIENCE AND TACTICS

Certificates of Proficiency in the Department of Military Training were awarded to the following cadets:

Cadet Colonel Luster Ray Kleinknight
Cadet Lieutenant Colonel Coleman Russell Sample
Cadet Major Eugene Sidney Schweig
Cadet Captain John Mason Naylor
Cadet Captain Morris Elmer McCarty
Cadet Captain Norman Virgil Geyer
Cadet Captain Harvey Earl Behlmer
Cadet Captain Frank Marshall Moorman

ORGANIZATIONS OF THE ALUMNI

GENERAL ASSOCIATION

(Founded 1878)

President, Charles William Morey, '97.
Vice-President, Alva Ernst Kemmer, '02.
Treasurer, Samuel Sayford Cromer, '14.
Secretary, E. Kathleen Brady, '11, 218 Fowler Ave., West LaFayette.
These officers also constitute the Executive Committee.

LOCAL ASSOCIATIONS

Indianapolis, Ind. (Founded 1890)
Secretary, Gage McCotter, '11, 808 Bd. of Trade Bldg.

Chicago, Ill. (Founded 1891)
Secretary, Florian Eugene Laromore, '12, 2646 Argyle St.

Pittsburgh, Pa. (Founded 1901)
Secretary, Frederick Fulton Mason, '08, 1520 Marquette Bldg.

Cleveland, O. (Founded 1902)
Secretary, Edward Orth Malott, '16, 14620 Stratmore Ave., E. Cleveland.

Eastern Association. (Founded 1904)
Secretary, Chas. Floyd Pittman, '11, 711 Crane St., Schenectady, N. Y.

New York City. (Founded 1905)
Secretary, Edwin Millard May, '02, 30 E. 42nd St.

Cincinnati, O. (Founded 1907)
Secretary, Hamilton Wilson, '13, 2607 Union Central Bldg.

Fort Wayne, Ind. (Founded 1907)
Secretary, Walter Henry Sunier, '15, 1024 Organ Ave.

St. Louis, Mo. (Founded 1907)
Secretary, William Peter Klippel, '12, 5354 Patton Ave.

Northern Indiana Association. (Founded 1908)
Secretary, Emmett Hunt Thomas, '14, Ind. & Mich. Elec. Co., South Bend.

Washington, D. C. (Founded 1908)
Secretary, Marion Xavier Wilberding, '13, 1303 Newton St.

Gary, Ind. (Founded 1909)
Secretary, Lewis Vance West, '13, 663 Pierce St.

Los Angeles, Cal. (Founded 1910)
President, George Arthur Howk, '05, 916 Higgins Bldg.

Milwaukee, Wis. (Founded 1911)
Secretary, Ernest Vincent Cook, '06, 198 15th Ave.

New England Association. (Founded 1913)
Secretary, Estus Hubert Magoon, '13, 20 Haviland St., Boston, Mass.

Detroit, Mich. (Founded 1913)
Secretary, Raymond Arthur Smith, '14, 639 Beechwood Ave.

Tri-City Association. (Founded 1914)
Secretary, Charles Russell Stahl, '15, People's Light Co., Davenport, Iowa.

San Francisco, Cal. (Founded 1914)
President, William B. Bunker, ex-'86, Crocker Bldg.

Dayton, O. (Founded 1914)
Secretary, Charles Russell Martin, '14, Y. M. C. A.

Grand Rapids, Mich. (Founded 1914)
Secretary, George Wiley Johnson, '13, 910 Worden St.

Memphis, Tenn. (Founded 1915)
Secretary, Charles English Shearer, '05, 738 Randolph Bldg.

Cass County, Ind. (Founded 1917)
Secretary, Willard Clinton Fitzer, '90, Clymers.

Kansas City, Mo. (Founded 1917)
President, Milo Franklin Hale, '06, 2037 Houston Ave.

Akron, O. (Founded 1917)
President, George Washington Hanna, '06, 271 Wildwood Ave.

LaFayette, Ind. (Founded 1919)
Secretary, Horace Greeley Reisner, '03, 325 State St., West LaFayette.

REGISTER OF GRADUATE STUDENTS

Barton, Bessie Helen .... LaFayette
B. S., 1915.
Non-resident. Candidate for the degree of Master of Science.

Beck, William Harold .... Indianapolis
B. S. in Electrical Engineering, 1915.
Non-resident. Candidate for the degree of Electrical Engineer.

Bittner, Edward Frank .... West LaFayette
B. A. Alma College, 1918.
Resident. Candidate for the degree of Master of Science.

Borgerd, William Frederick .... Chicago, Ill.
B. S. in Mechanical Engineering, 1916.
Non-resident. Candidate for the degree of Mechanical Engineer.

Briggs, Margaret .... West LaFayette
B. S., 1918.
Resident. Candidate for the degree of Master of Science.

Britt, Oscar Leo .... Indian Head, Md.
B. S. in Electrical Engineering, 1910.
Non-resident. Candidate for the degree of Electrical Engineer.

Crosthwait, David Nelson, Jr. .... Marshalltown, Ia.
B. S. in Mechanical Engineering, 1913.
Non-resident. Candidate for the degree of Mechanical Engineer.

Davis, Edward Wilson .... Minneapolis, Minn.
B. S. in Electrical Engineering, 1911.
Non-resident. Candidate for the degree of Electrical Engineer.

Eickhoff, Theodore Henry .... Cleveland, O.
B. S. in Electrical Engineering, 1908.
Non-resident. Candidate for the degree of Electrical Engineer.

Elkin, Sarah Kathryn .... West Lafayette
B. of Phil., University of Chicago, 1915.
Resident. Candidate for the degree of Master of Science.

Gillette, Helen Clark .... Indianapolis
B. S., 1913.
Non-resident. Candidate for the degree of Master of Science.

Greene, Smith Winford .... Washington, D. C.
B. S. in Agriculture, 1915.
Non-resident. Candidate for the degree of Master of Science in Agriculture.

Grubb, Aubrey Chester .... West LaFayette
B. A., Iowa State Teachers' College, 1917.
Resident. Candidate for the degree of Master of Science.

Hamilton, Francis Frazee .... Indianapolis
B. S. in Electrical Engineering, 1914.
Non-resident. Candidate for the degree of Electrical Engineer.

Hasselzahl, Elizabeth Ora .... West LaFayette
B. S., 1917.
Resident. Candidate for the degree of Master of Science.

Herring, Frederic Jerome .... Forest City, Ark.
B. S. in Civil Engineering, 1907.
Non-resident. Candidate for the degree of Civil Engineering.

Hofstetter, Robert .... Chicago, Ill.
B. S. in Electrical Engineer, 1914.
Non-resident. Candidate for the degree of Electrical Engineer.

Holbert, James Ransom .... Bloomington, Ill.
B. S. in Agriculture, 1915.
Non-resident. Candidate for the degree of Master of Science in Agriculture.

Iddings, Nora .... West LaFayette
B. S., 1918.
Resident. Candidate for the degree of Master of Science.

Kohl, Edwin Jacob .... West LaFayette
B. S., Albright College, 1915.
Resident. Candidate for the degree of Master of Science.

Latta, Mary .... West LaFayette
B. S., 1917.
Resident. Candidate for the degree of Master of Science.

Lower, Leslie Oliver .... Cleveland, O.
B. S. in Civil Engineering, 1907.
Non-resident. Candidate for the degree of Civil Engineer.

Luckett, James Douglass .... Washington, D. C.
B. S. in Agriculture, 1916.
Non-resident. Candidate for the degree of Master of Science in Agriculture.

Lukens, Harry Maxwell .... Los Angeles, Calif.
B. S. in Civil Engineering, 1912.
Non-resident. Candidate for the degree of Civil Engineer.

Lynde, Lydia Ann Hildebrand .... Indianapolis
B. S., 1913.
Non-resident. Candidate for the degree of Master of Science.

McEachron, Karl Boyer ....West LaFayette
E. E., Ohio Northern University, 1913.
Resident. Candidate for the degree of Master of Science in Electrical Engineering.

Miller, Arthur Louis ....Pittsburgh, Pa.
B. S. in Chemical Engineering, 1914.
Non-resident. Candidate for the degree of Chemical Engineer.

Miller, Joseph Harrison ....Memphis, Tenn.
B. S. in Civil Engineering, 1912.
Non-resident. Candidate for the degree of Civil Engineer.

Miller, Walter ....Manhattan, Kans.
B. S. in Electrical Engineering, 1913.
Non-resident. Candidate for the degree of Electrical Engineer.

Morris, Earle Hedderich ....Indianapolis
B. S. in Civil Engineering, 1912.
Non-resident. Candidate for the degree of Civil Engineer.

Munger, Marie Lela ....LaFayette
B. S., 1917.
Resident. Candidate for the degree of Master of Science.

Niesse, John Leo ....Indianapolis
B. S. in Electrical Engineering, 1916.
Non-resident. Candidate for the degree of Electrical Engineer.

O'Brien, Herbert Sheldon ....Wabash
B. S. in Civil Engineering, 1915.
Non-resident. Candidate for the degree of Civil Engineer.

Plaskett, Clyde Arthur ....Madison, Wis.
B. S. in Civil Engineering, 1917.
Non-resident. Candidate for the degree of Civil Engineer.

Price, Otho Joel ....Ravenna, Ohio
B. S. in Agriculture, 1915.
Non-resident. Candidate for the degree of Master of Science in Agriculture.

Rhoads, Charles Stanley, Jr. ....Yonkers, N. Y.
B. S. in Electrical Engineering, 1916.
Non-resident. Candidate for the degree of Electrical Engineer.

Richardson, Inez May ....West LaFayette
B. S., 1916.
Resident. Candidate for the degree of Master of Science.

Richey, Perry Steen ....LaFayette
B. S. in Agriculture, 1912.
Resident. Candidate for the degree of Master of Science in Agriculture.

Ritchie, Raymond Rockwood .... Indianapolis
B. S. in Electrical Engineering, 1908.
Non-resident. Candidate for the degree of Electrical Engineer.

Robinson, Gladys Margarie .... West LaFayette
B. S., 1917.
Resident. Candidate for the degree of Master of Science.

Roop, Jacob Howard .... West LaFayette
B. S. in Chemistry, Pa. State College, 1911.
Resident. Candidate for the degree of Master of Science.

Rosenthal, Harry John .... Madison, Wis.
B. S. in Civil Engineering, 1916.
Non-resident. Candidate for the degree of Civil Engineer.

Sartor, Ralph Henry .... Elmira, N. Y.
B. S. in Civil Engineering, 1907.
Non-resident. Candidate for the degree of Civil Engineer.

Scott, Marland Fall .... Indianapolis
B. S. in Electrical Engineering, 1915.
Non-resident. Candidate for the degree of Electrical Engineer.

Sheridan, Mary Elizabeth .... Peru
B. S., 1914.
Non-resident. Candidate for the degree of Master of Science.

Smith, Glenn Marsh .... West LaFayette
B. S. in Hort., Iowa State College, 1916.
Resident. Candidate for the degree of Master of Science in Agriculture.

Snethen, Perry William .... Bethlehem, Pa.
B. S. in Civil Engineering, 1909.
Non-resident. Candidate for the degree of Civil Engineer.

Snodgrass, Eda Ethell .... Ypsilanti, Mich.
B. S., 1913.
Non-resident. Candidate for the degree of Master of Science.

Spray, Lynn Whitcomb .... Freeport, Tex.
B. S. in Electrical Engineering, 1915.
Non-resident. Candidate for the degree of Electrical Engineer.

Stevenson, Mary Harris .... West LaFayette
B. A., Hanover College, 1918.
Resident. Candidate for the degree of Master of Science.

Not Candidates for Degrees.

Greenfield, Eric Viele .... LaFayette
A. B., Colgate University, 1902; A. M., Harvard University, 1907.
Resident. Student in Science.

Gunn, John Tevis .... LaFayette
A. B., Kentucky State University, 1900; A. M., 1901.
Resident. Student in Science.

Jacobs, Harry Carson .... West LaFayette
B. S. in Agriculture, 1918.
Resident. Student in Science.

Mallon, Marguerite Genevieve .... West LaFayette
M. S., University of Chicago, 1916.
Resident. Student in Science.

Papish, Jacob .... West LaFayette
A. M., Indiana University, 1917.
Resident. Student in Science.

Penrod, Estel Burdell .... West LaFayette
B. S. in Mechanical Engineering, 1915.
Resident. Student in Science.

REGISTER OF UNDERGRADUATE STUDENTS

Abbreviations: A—Agriculture; C—Civil Engineering; Ch—Chemical Engineering; E—Electrical Engineering; M—Mechanical Engineering; P—Pharmacy; S—Science; W S—Eight Weeks Winter School in Agriculture.

The numeral preceding the abbreviation indicates the class year of the student; an "s" in the same position indicates a special student. When the number 1 or 2 follows the letter P, reference is made to the First or Second year in the Two Year Plan of Study in the School of Pharmacy.

Acevedo, Mario Antonio	3 C	New York
Adams, Allyn John	4 M	Lebanon
Adams, Grace	1 S	Indianapolis
Adams, Raymond Edward	1 M	Rockville
Adams, Waldo Loren	1 A	Claypool
Adams, Walter William	1 M	Lebanon
Adamson, Samuel Boher	1 A	Terre Haute
Addison, Russell Edwin	1 M	Charlottesville
Adler, Harold James	4 C	Minneapolis, Minn.
Admire, Amzie Oral	4 E	Greenwood
Aigner, Milton Roy	2 M	Wanatah
Albershardt, William Gehring	3 C	Tipton
Albertson, John Albert	1 M	Vallonia
Alcorn, Corry Avon	3 A	Poseyville
Alderton, Ivan Chester	1 E	Marion
Allen, Clayton Moses	4 E	Cleveland, O.
Allen, Cromwell Morton	1 A	Morganfield, Ky.
Allen, Roy Dewitt	1 Ch	Montgomery
Allison, Robert Vearl	3 A	LaFayette
Ambler, Glenn Findley	1 A	Pine Village
Ames, George Arnold	1 M	Portland
Amstutz, Frank Elroy	1 A	Auburn
Anders, Russell Honer	1 E	Mishawaka
Anderson, Carl Oscar	2 Ch	Chicago, Ill.
Anderson, Lucian Lawrence	3 A	Rushville
Anderson, Sebastian	1 M	Wabash
Anderson, Spencer Tyron	3 C	Vevay
Anderson, Shirley Wilson	3 A	Noblesville
Anderson, William Marshall	1 A	Pine Village
Andreu, Oscar Mario	4 C	Camaguey, Cuba
Andrews, Frank Emory	1 M	Hamilton, O.
Anglin, Victor Valentine	1 P	Etna Green
Anthony, Jay Dewey	1 E	Auburn
Antibus, Harvey	1 A	Lyons
Apor, Emil Lawrence	3 M	Budapest, Hungary
Appel, Albert George	W S	Evansville
Appenzeller, Harry Howard	1 E	Redkey
Arbuckle, Hazel Irene	2 S	Brownsburg
Archbold, Marion Joseph	4 Ch	Decatur
Archer, Vesta Lorinda	1 S	West LaFayette
Armstrong, Jefferson Ferrance	1 M	Jamestown, N. Y.
Arndt, Eric Muesse	3 C	Indianapolis
Arnold, Richard Nelson	2 A	York, Pa.

Ashcraft, Emil Gilbert	1	P	Mount Comfort
Ashford, Clifford Harold	1	M	Oklahoma City, Okla.
Ashley, Kenneth David	4	Ch	Fort Wayne
Asperger, Herbert Andrew	1	C	Indianapolis
Atherton, Thomas Bates	1	M	Cumberland
Ault, Hubert Kenneth	1	A	Hope
Ayers, Floyd Putnam	1	C	West LaFayette
Ayers, Howard	2	M	West LaFayette
Ayers, Hugh Raoul	1	C	Danville

Babb, Edward Lyle	2	M	Memphis, Tenn.
Baber, Garl Crist	1	M	Wabash
Bader, Herbert Francis	1	M	Indianapolis
Baer, Harriette Genevieve	1	S	Wabash
Baer, Orth Alexander	4	A	Dayton
Baganz, Herbert Morris	2	M	West LaFayette
Bahls, Clarence Albert	2	A	LaFayette
Bailey, George Hiram Lewis	3	E	Milan
Bailey, Oliver Paul	1	M	Winchester
Bailey, Robert Willbank	W	S	Anderson
Bailey, William Kyle	4	M	East Toledo, O.
Baird, Harry Clifford	1	C	Bainbridge
Baker, Clark Leonard	1	A	LaFayette
Baker, Loren Valentine	1	S	Attica
Baker, Monelle	2	S	Windfall
Baker, Paul Theodore	1	E	Winchester
Baker, Walker Willis	3	A	Monticello
Balais, Miguel Manuel	2	M	Jovellanos, Cuba
Baldwin, Edward Nicholas	1	M	Jeffersonville
Baldwin, Ira Lawrence	4	A	Oxford
Baldwin, John Weston	1	E	Owensville
Bales, Willis Dewey	1	M	Dunkirk
Ball, Beatrice Annette	4	S	LaFayette
Banks, Louis Albert	W	S	Elkhart
Barkdell, Clifford Curtiss	4	P	Peru
Barker, Harry Donald	1	C	LaGrange
Barker, Paul Isaac	4	A	Waterloo
Barker, Paul Scott	1	Ch	Scircleville
Barkman, Paul LeRoy	2	M	Muncie
Barnard, Lulu	1	S	LaFayette
Barnes, Arthur Clay	3	M	LaFayette
Barnes, Darrell John	W	S	Eaton
Barnes, Lyle Harris	3	A	Kewanna
Barnes, Stephenson Barton	2	C	South Bend
Barnes, William Ashley	2	A	Roachdale
Barnes, William Burnette	3	M	Helena, Ark.
Barnett, Van Alstine	2	C	Fort Wayne
Barngrover, Robert Stanley	1	Ch	Kokomo
Barnhardt, Mary Harris	1	S	West LaFayette
Barr, Marjorie Augusta	4	P	Kansas, Ill.
Barrett, Eugene Conway	2	A	Indianapolis
Barrington, James Robert	1	Ch	Marion
Bartholomew, Harry Donald	W	S	Goshen
Bartholomew, Thomas Isreal	1	A	Danville
Bartholomew, William Jacob	1	A	Terre Haute

Bartlemay, Charles Edward	1 Ch	Goshen
Bartlett, Carroll Archer	4 E	Cleveland, O.
Bartlett, Clinton Goembel	3 C	Strawn, Ill.
Bartlett, Irving Gayle	1 E	LaFayette
Bash, Daniel Ketter	1 C	Indianapolis
Batchelor, David Ardery	1 A	Indianapolis
Bates, Albert Edward	1 E	Montclair, N. J.
Batt, Thomas Howard	4 M	Salem
Baughman, Ray Greene	2 C	Linton
Baumgartner, Willis	1 Ch	Berne
Bausman, William Emerson	1 C	Dayton
Beach, Elizabeth	1 S	LaFayette
Beach, Melvin Elias	1 M	Lewisville
Beahm, Alden Loomis	1 M	Westville
Beall, Hugh Edward	2 A	Clarksburg
Beall, Kenneth Ellsworth	4 E	Pheba, Miss.
Beall, Thelma	2 S	Clarksburg
Beall, Willard Robert	1 A	Lyons
Beard, Clarence Ralph	1 A	Michigantown
Beatty, Joseph Burel	1 M	Hayden
Beazell, Mary Esther	3 S	Boswell
Beazell, William Harvey	2 E	Boswell
Bechtel, Bemis Burdell	1 E	Wakarusa
Becker, Arthur Leonard	4 A	Hammond
Beebe, Asa Lewis	3 M	Kankakee, Ill.
Beeler, Roscoe Hunter	1 M	Marion
Beeson, Roy Herbert	Pl	Greensburg
Beisel, Donald Hamilton	s S	Howe
Beldon, Jerry Fislar	3 A	Brownstown
Bellows, Lloyd Arville	1 S	LaFayette
Bement, David Leslie	1 E	Goshen
Bendixen, Harold Henry	2 Ch	Davenport, Ia.
Benham, Charles Griffin	1 M	Muncie
Benham, John Andrew	2 M	Muncie
Benner, Donald Wright	1 M	Mays
Benner, William Dietrich	1 Ch	Jeffersonville
Benson, John Michael	2 M	Whiting
Berger, Alvin Samuel	1 M	Indianapolis
Bergmann, Paul Ferdinand	1 M	Logansport
Berkey, Lowell Matz	1 A	Bourbon
Berlin, Donovan Reese	2 M	Brook
Berns, William Jennings	4 A	Linton
Beutler, Edward William	4 M	West LaFayette
Bickel, Leon Robert	1 Ch	Union City
Biddle, Caroline	4 S	Battle Ground
Biery, Miles Windfield	1 C	Dayton
Billett, Russell Arthur	2 C	Indianapolis
Bills, Charles Franklin	1 S	Delphi
Birchfield, Beatrice Elva	1 S	LaFayette
Birchfield, Helen Marce	1 S	LaFayette
Birk, Ferdinand John	1 M	Owensboro, Ky.
Birt, Hope Aldine	1 S	LaFayette
Bishop, Clarence Ort	1 A	Arcadia
Bishop, Oscar Marvin	1 E	South Superior, Wyo.
Bittner, Fred Ernest	1 M	Rochester, N. Y.

Blackburn, John Robert	1	A	Parker
Blackwell, Hazael Oris	4	A	Franklin
Blair, Forest Kelsay	1	A	Fairmount
Blair, Russell Madison	1	E	Norwood, Ohio
Blake, Herbert Lee	Pl		Alexandria
Blackeney, Creswell Garrettson	2	C	Denver, Colo.
Blanchard, Herman Warner	3	Ch	Tamaroa, Ill.
Bledsoe, Cecil Lemuel	2	E	Raub
Blocher, Harvey Coyne	1	E	West Baden
Bloemker, Herbert Henry	1	C	Indianapolis
Blough, Ralph Emerson	1	E	Goshen
Blue, Lebert Elder	4	E	Montezuma
Blue, Sarber Allen	1	M	Mentone
Blume, Ralph Joseph	1	M	Fort Wayne
Blumenschein, Leo Rupert	1	C	Washington, Ill.
Blust, Charles Arthur	2	M	Sidney, Ohio
Bockes, Henry Stuart	1	C	Windham, Mont.
Bodine, Harry Eugene	2	S	Covington
Boegli, Howard Lowellan	2	M	Fort Wayne
Boes, George Francis	3	E	LaFayette
Boggs, Charles Arthur	1	C	Veedersburg
Boggs, Conda Plummer	4	E	Argos
Boggs, Fred Rudolph	1	A	Argos
Boicourt, John Glen	1	M	Deedsville
Bolt, Harry Edward	2	E	East St. Louis, Ill.
Boner, Cloyd Erasmus	1	C	Mount Comfort
Bonham, Elijah Russell	2	A	Warren
Bonnell, Robert Dewey	1	C	Indianapolis
Booth, Borden Cornelius	2	Ch	Syracuse, N. Y.
Booth, Ralph William	2	A	London, Ohio
*Booth, Samuel Lewis	1	C	Princeton, Ky.
Borcherding, Edward William	1	C	Indianapolis
Borden, Miner Carl	1	A	Peru
Border, Earl E.	1	Ch	Warren
Bosart, Russell Sheeks	4	M	Indianapolis
Botkin, Donal Bela	1	M	Winchester
Botset, Holbrook Gorham	1	Ch	Mishawaka
Botts, Walter Max	Pl		Sullivan
Boulden, Arthur Roy	1	M	Indianapolis
Boulds, Helen Ruth	2	S	West LaFayette
Bouton, Christopher Bell	2	A	Waukegan, Ill.
Bowen, Charles Edward	1	C	Delphi
Bowen, Rex Eugene	1	C	Peru
Bowers, Frank	1	M	Marshall
Bowman, Milo Malcom	2	Ch	Valparaiso
Bowman, Starlin Ermal	1	A	Elnora
Bowman, William Crozier	3	M	Madison
Boyer, Myrtle May	4	S	LaFayette
Boyles, John Demetrius	1	E	Goodland
Bradford, Arthur Jay	1	M	Marion
Bradley, Charles John	3	M	LaFayette
Bradley, Joseph Edgar	W	S	Greenfield
Bradley, Merwyn Lucile Evans	2	S	LaFayette
Bradshaw, Rhe Margaret	s	S	LaFayette

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* Deceased.

Bradway, Earl Emerson	2	E	Eaton, Ohio
Bragg, Robert Elmore	2	M	Indianapolis
Brake, George Abel	3	S	Indianapolis
Branaman, Clyde Smith	W	S	Bedford
Brandenburg, Clyde Sanderson	3	M	West LaFayette
Brandt, Edwin William	1	M	Freelandville
Branham, Charles Newsom	3	M	North Madison
Branitzky, William Rudolph	1	C	Chicago, Ill.
Bray, LeRoy Elvin	4	A	Clayton
Brenneman, Howard	1	A	New Castle
Bridges, James Alverson	1	M	Danville
Brier, Beatrice Louise	2	S	LaFayette
Briggs, Harold Lester	2	E	Logansport
Briggs, Mabel Elen	4	S	Logansport
Brigham, Watson Crocker	1	M	Cleveland, Ohio
Brittain, Stephen Gerald	1	Ch	Loogootee
Brizius, Harold William	4	E	Newburgh
Bromm, Louis Martin	2	A	Evansville
Bronnenberg, Myron Peyton	1	E	Daleville
Brooks, Roy Emil	1	E	Remington
Brower, Paul Vernon	2	Ch	Richmond
Brown, Argus Grant	1	M	Deedsville
Brown, Campbell Alexander	3	E	Washington, D. C.
Brown, Charles Lawton	1	A	Plymouth
Brown, Carlyle Mease	1	E	Goshen
Brown, Donald Leroy	4	C	Brazil
Brown, George James	1	A	Milford
Brown, Harold Elroy	1	C	Montpelier
Brown, James Clayton	1	P	Burnetts Creek
Brown, John Howard	1	A	Goshen
Brown, Jacob Roy	1	M	Goshen
Brown, Kenneth Dilley	2	M	Crown Point
Brown, Leroy Lora	2	A	Shelbyville
Brown, Margaret Louise	1	S	LaFayette
Brown, Robert Lewis	1	C	Brazil
Brown, Vernon Baldwin	2	E	Indianapolis
Brown, Virgil Nesbitt	1	C	Fairmount
Browne, Joe Donald	1	M	Wincheser
Brownell, Harold Ward	1	M	Lowell
Browning, Albert Dewey	1	E	Fort Wayne
Browning, Albert Jesse	1	Ch	Blackfoot, Idaho
Brubaker, Ralph	1	A	Leesburg
Brunson, Carl Littlefield	1	C	Fort Wayne
Brutus, Glenn Hansell	1	A	Pine Village
Bryan, Emory Westlake	1	Ch	Indianapolis
Bryan, Lynn Rowland	2	A	West LaFayette
Bryan, Ralph Arvill	W	S	Forest
Bryan, Stanton Tony	1	C	Evansville
Buck, John Loudin	2	E	Bicknell
Buckley, Helen	3	S	Richmond
Buckner, B. Franklin	1	E	Liberty Center
Budenbom, Horace Trent	1	E	Elizabethtown
Buebel, Emil Frederick	4	M	Altoona, Pa.
Buffington, George Victor	1	E	Culver
Bugh, Orva Edwin	1	A	Hartford City

Bull, Fowler Frederick	1 M	West LaFayette
Bundy, Loren Clayton	3 C	Carthage
Bundy, Leonard Paul	1 M	Greenfield
Bundy, Raymond Stephen	3 A	Aurora
Bunger, Howard Reid	1 E	Frankfort
Bunnell, Homer Elmer	2 M	Jeffersonville
Burch, Frank Lester	4 M	Oak Park, Ill.
Burger, Harold Lindley	1 M	Henrietta, N. Y.
Burger, Russell David	1 C	South Bend
*Burgess, Arthur Jakway	1 A	Goodland
Burgess, Raymond Harry	1 M	Richmond
Burk, Earl Peter	1 M	Evansville
Burkert, Robert Cyrus	1 C	Evansville
Burkett, Dillard	3 Ch	Madisonville, Ohio
Burkit, Lindley Revel	1 A	Dermott, Ark.
Burkle, Leona Alta	2 S	Montmorenci
Burton, John Earle	1 C	Warren
Busche, Louis Martin	4 A	Monroe
Bush, Russell J.	2 Ch	Colfax
Busteed, William Short	P1	Frankfort
Butner, William Amos	1 E	Windfall
Butterfield, Joseph Parker	1 Ch	Gary
Byers, Nellie Etheldred Kessler	s S	West LaFayette
Byram, Holbert	1 M	Waverly, N. Y.
Byrne, Charles Emmett	1 C	Union City
Byrne, Robert William	2 E	Indianapolis
Cade, David Samuel	2 M	Veedersburg
Cadou, Edward Leance	1 E	Vincennes
Cady, John Edwin	3 Ch	Indianapolis
Calkins, Richard Andrew	2 M	Indianapolis
Callahan, Robert Durham	1 Ch	Fort Wayne
Callis, Paul Allbright	1 E	Rockville
Calloway, Paul Edward	1 M	Frankfort
Calvert, Ray Rice	3 A	Delphi
Cameron, Donald Wayne	2 E	Gary
Campbell, Donald Troy	1 M	Greenfield
Campbell, Gladys Evelyn	1 S	Oklahoma City, Okla.
Campbell, Ray Wetherill	3 M	LaFayette
Campbell, Sanford Arthur	4 A	Valparaiso
Campbell, William Burton	2 M	West LaFayette
Cannon, Helen Jackson	3 S	LaFayette
Carl, Maurice Rudolph	4 M	Pomeroy, Ohio
Carlisle, Irene Lucile	4 S	Mooresville
Carothers, Charles Hallard	1 Ch	Indian Springs
Carr, Frances	1 S	LaFayette
Carr, Stanley Byron	1 A	Rochester
Carson, Otis	1 Ch	Clermont
Carson, Raymond Edgar	2 M	Indianapolis
Cary, Walter Lee	1 A	Alexandria
Case, Benjamin Harrison	2 C	Harrison, Ohio
Case, Howard McKinley	2 C	Harrison, Ohio
Case, Nancy Gay	2 S	Wolcottville
Casis, Pedro Antonio	2 A	Bogota, Colombia, S. A.

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* Deceased.

Cass, Lewis Roberts	1	Ch	Westville
Castell, Stanley	1	A	Angola
Cecrle, Rudolph Paul	2	A	Walkerton
Cecrle, Stanley Peter	3	A	Walkerton
Chadbourne, Hugh Hoyt	1	M	LaFayette
Chamberlain, Jessie Leona	4	S	Brook
Chamberlain, John William	W	S	Brook
Chamberlain, Joseph William	2	A	Bloomfield
Chan, Siu Kun	3	M	Hongkong, China
Cheney, Merle Benjamin	4	Ch	Jamestown, N. Y.
Chenoweth, Opie	2	M	Winchester
Chenoweth, Robert Carey	2	M	Indianapolis
Childs, Howard Alvin	1	A	North Vernon
Chinworth, William Jonathan	1	M	Macy
Chiu, Cheng Lun	2	A	Szechuen, China
Christen, Catharine May	2	S	Decatur
Christen, Ellis Marlowe..	4	A	Decatur
Christie, Iva	2	S	Kempton
Christie, John Grosch	1	M	Amo
Chu, Chin	4	M	Washington, D. C.
Church, Viola Fern	4	S	Fishers
Clark Charles Wayne	2	E	Greensburg
Clark, Dorothy	3	S	North Baltimore, Ohio
Clark, Ernestine	1	S	LaFayette
Clark, Edwin Earl	1	Ch	Jeffersonville
Clark, John Harold	4	C	Norwood, Ohio
Clark, Joy Harold	2	A	Waldron
Clark, Jay Likins	1	M	Elwood
Clark, Marjorie Ruth	4	S	West LaFayette
Clark, William Arthur	2	E	Warren
Clarke, Milo Russell	1	M	Rensselaer
Clarkson, Uldine	4	S	West LaFayette
Clay, Daniel Turney	2	A	Paris, Ky.
Clay, John Carter	2	A	Paris, Ky.
Clemens, Herbert Anthony	1	M	Fort Wayne
Clemens, Herbert Kiesel	4	E	West LaFayette
Cleveland, Francis Lindley	1	M	Springport
Click, Hobart Mount	1	Ch	Warren
Clifford, William	1	M	Indianapolis
Clift, William Harry	2	M	Indianapolis
Cline, Noah Nolan	1	M	Culver
Cline, Odie Lynn	1	M	Sheridan
Clinger, Arthur Clemens	4	E	Ashland, Ky.
Clink, Ralph	1	E	Ashley
Clinkenbeard, Harry	1	M	Freelandville
Clodfelter, Carl Carrington	1	A	Judson
Clogston, Charles Curtis	1	Ch	Bloomfield
Clore, Everett	1	A	Kingman
Clugston, Bruce Dryer	1	E	LaGrange
Coble, Urban Lloyd	2	A	Paragon
Coffing, Floyd Lee	2	C	West LaFayette
Coffman, Fred Harold	1	C	Muncie
Cohen, Armand Earl	1	S	Jeffersonville
Cohen, Isadore William	2	C	Indianapolis
Coin, Raymond Herbert	1	C	Frankfort

Cole, Maxwell Sphon	2	Ch	Cleveland, Ohio
Cole, Ralph Alfred	1	C	Michigan City
Cole, Ruall Omer	2	A	New Amsterdam
Coleman, William Howard	4	M	Jonesboro
Colglazier, George Harvey	W	S	Bedford
Collier, Norris	1	M	Greenfield
Collier, Thomas Caperton	3	M	Troup, Tex.
Collings, Clarence Smiley	4	A	Judson
Collins, Howard William	1	C	Churchville, N. Y.
Collins, Rhoda Coffin	2	S	Ravinia, Ill.
Colter, Robert Berry	2	E	Decatur
Colvin, Ernest Lee	1	A	Tobinsport
Colvin, Harold Raymond	1	E	South Bend
Compton, Laurel Clifford	1	M	Shelbyville
Compton, LeRoy Everett	4	A	Bourbon
Congram, Howard Wesley	2	A	Francesville
Connelly, John Thompson	1	E	Twin Falls, Id.
Conner, Howard Lorain	4	E	North Vernon
Conner, Isaac Leland	2	E	Sullivan
Conrad, Merle Waldo	1	M	Clark's Hill
Conrad, Paul Cartmill	4	A	Clark's Hill
Conway, Eva Irene	3	S	Delphi
Conyers, John Woodward	1	E	Milan
Cook, Arthur John	1	Ch	Huntington
Cook, Elizabeth Merle	1	S	Veedersburg
Cook, Kenneth	4	C	Warsaw
Cook, Maurice Jacob	1	A	Arcola
Cook, Mahlon Ozro	1	A	Noblesville
Cook, Thomas James	1	E	Covington, Ky.
Cooley, John Vincent	1	E	Raub
Cooney, Lloyd Virgil	1	M	Bunker Hill
Coons, Charles Curtis	1	A	Gary
Cooper, Azro Myrle	1	M	Danville
Cooper, James Russell	1	C	Dayton
Cooper, Manson Manuel	1	E	Greencastle
Copeland, Howard Paul	1	M	Wilkinson
Copeland, Horace Somerville	4	A	Wilkinson
Corbin, Rush Robert	1	E	Worthington
Cordell, Alice Bright	s	S	West LaFayette
Corey, Lorin Anthony	1	M	Fort Wayne
Cornelius, Pembroke Willis	1	M	Indianapolis
Cornwell, Robert Arterburn	1	E	Mitchell
Cornwell, William Hughes	1	E	Remington
Cory, Lawrence Noel	1	Ch	Colfax
Cosby, Leonel Harrold	3	S	LaFayette
Courtney, Robert Paul	1	Ch	Washington
Courtney, Thomas Edward	1	Ch	Indianapolis
Covert, Henry Earl	1	M	Jeffersonville
Cowan, Elizabeth Louise	3	S	Crawfordsville
Cox, Benjamin Leonard	1	Ch	Elwood
Cox, Myron R	W	S	Westfield
Crabb, Robert Watson	4	P	Terre Haute
Crabtree, Donald Louis	1	C	Clay City
Crabtree, Edgar George	1	M	Clay City

Craig, Carl Stirling	1	A	Indianapolis
Craig, Harold Curtis	1	A	Jonesboro
Craig, John Dorsey	1	M	Jeffersonville
Craig, Richard Albert	2	A	Indianapolis
Craig, Robert Sphon	1	S	LaFayette
Craig, Stuart Allen	4	E	New Albany
Craig, Wallace Williams	1	Ch	New Albany
Crain, Charles Byron	4	A	LaFayette
Crain, Harold Stark	1	C	Elkhart
Crandall, George Haliburton	2	Ch	Culver
Crane, Noble Thomas	4	A	West LaFayette
Crates, Royal Rene	1	E	Monroeville
Crews, Frank	1	A	Huntington
Crist, Clarence Matney	1	E	Glenwood
Crist, Raymond Elias	1	E	Monroe
Cromwell, Herbert Francis	1	M	Clay City
Cromwell, Owen	1	C	Clay City
Crooke, Dallas Franklin	2	C	Indianapolis
Crooker, Winfield Durbin	2	E	Jeffersonville
Crosbie, Walter	1	E	Liberty Center
Crosby, Byron	W	S	Roachdale
Crosby, Claude	3	A	Roachdale
Crosby, Ray Ermal	1	E	Elnora
Crowe, Heber Haworth	2	A	Pennville
Crowe, Paul Lewis	2	C	LaFayette
Crowell, Florence Bertha	4	S	San Antonio, Tex.
Croy, Herschal Henry	2	A	West LaFayette
Crull, Ivan Francis	2	E	Osceola
Culbertson, Raymond Edward	1	C	Indianapolis
Cullar, Fred Orlando	4	A	North Liberty
Cummins, Max William	P	1	Hymera
Cunningham, Charles Bernard	1	E	Washington
Cunningham, Glessie Garlin	2	A	Sullivan
Cunningham, Oris Blake	1	E	Indianapolis
Cushman, Carl Golden	2	A	Sullivan
Custer, Ralph Lebbeus	2	Ch	Logansport
Custer, Ruth May	3	S	Logansport
Cutrell, Ernest Alpheus	2	S	Plainfield
Cutshall, Chester Sherman	4	Ch	Fort Wayne
Cutshall, Norman Conrad	1	Ch	Fort Wayne

Dailey, Sidney Fields	1	Ch	Indianapolis
Dair, Charles William	3	C	Harrison, Ohio
Daly, John Thomas	2	S	Springfield, Mass.
Daniel, Samuel Greenhow	2	Ch	East St. Louis, Ill.
Dannettell, Merle Quivrain	2	Ch	Seymour
Darnell, Earl James	1	C	Sheridan
Daugherty, John Clark	1	M	Indianapolis
Daugherty, Maurice William	1	Ch	Indianapolis
Daugherty, Robert Paul	1	E	Princeton
Davenport, Maurice Clay	1	M	North Salem
Davidson, Harvey Harrison	1	C	Gentryville
Davis, Charles Clayton	1	M	Lowell
Davis, Calvin Russell	4	M	Morgantown, W. Va.

Davis, James Otto	2	Ch	Wabash
Davis, Kenneth Winfield	1	C	Louisville, Ky.
Davis, Lewis Henry	2	M	Wabash
Davis, Lewis Walter	2	A	Mooreland
Davis, Palmer Jay	1	A	Forest
Davis, Royal Edgar	1	C	Greencastle
Davis, Samuel Thayer	4	A	Rockville
Davis, William Clifford	1	Ch	Madisonville, Ohio
Davisson, Ray Marcus	1	M	Winchester
Dawes, George Ewing	2	E	Jeffersonville
Dawson, John Arthur	3	E	Muncie
Day, John Mahlon	W	S	Westfield
Day, Oscar	2	C	Warsaw
DeArmond, Albert Murray	1	E	Redkey
Deaton, Arthur Raymond	1	M	Connersville
DeBerry, Clarence Allen	1	E	Bicknell
DeBlieux, Earl Verne	1	E	Shreveport, La.
DeCamp, Harold Everette	4	Ch	Elkhart
Decker, Leone Dewey	3	S	Brazil
Decker, Paul Henry	1	M	LaFayette
DeCou, Charles Theron	1	M	LaFayette
Deffendall, Denver Bryce	2	E	Petersburg
Degenhart, Dessie Anna	3	S	Hazleton
DeGrief, Martha Ashton	3	S	West LaFayette
DeHart, Raymond George	4	E	Aurora, Ill.
DeHority, Robert Louis	1	M	Elwood
Deller, Russel Alphonso	2	E	South Bend
Deming, Herschel Parr	1	E	Indianapolis
Denison, William Russell	2	C	Hanna
Denzler, Herman Zollinger	1	M	Indianapolis
Derck, Jerome Howard	1	M	Fort Wayne
DeRoche, Firmin Frederick	2	E	New Washington, Ohio
De Voe, Maynard Roy	3	A	Kendallville
DeVore, Romney Wilson	3	Ch	Guilford
Dice, Charles	1	E	Covington
Dice, Dallas Homer	1	Ch	Anderson
Dicke, Ferdinand Frederick	1	Ch	New Bremen, Ohio
Dickes, Kline C.	1	M	Portland
Dickey, James Kitchell	3	M	West LaFayette
Dickey, Robert Kenneth	2	M	West LaFayette
Dickison, Walter Herbert	1	M	Remington
Dickover, Glen Arthur	3	M	Hammond
Diederich, Edgar Foltz	1	Ch	Indianapolis
Dienhart, Gertrude Angela	4	S	LaFayette
Diggs, Dudley Pierre	3	E	Winamac
Diggs, John Marshall	1	E	Winamac
Dill, Howard Milton	1	M	Huntington
Dills, Gordon Searight	1	A	Garrett
Dils, Curtis Clifford	1	A	Gary
Dima-ano, Gregorio Castro	4	M	Baliwag, P. I.
Doctor, Arthur	W	S	Fort Wayne
Dobelbower, Gladys Luella	1	S	LaFayette
Doerr, Lawrence Omer	2	M	Brownstown
Doles, Robert Alfred	1	A	Greensburg

Donagher, Homer Franklin	1	A	Lyons
Donahew, Arthur LaOmer	1	M	Jeffersonville
Doolittle, Mervin Raymond	4	E	Logansport
Doty, Carl Bertrand	1	A	Kentland
Dougherty, Lawrence Allan	2	A	Liberty
Douglas, Mary Alice	2	S	Attica
Douglass, Cleland Glass	1	A	Covington
Douglass, Donald Dewey	3	A	Crawfordsville
Downey, Elmer Barr	2	A	LaPorte
Downing, Henry Baker	4	A	Wolcott
Drake, Charles Howard	s	A	Kentland
Draper, Claude McCrea	2	C	LaFayette
Draper, William Chester	1	C	Indianapolis
Driftmeyer, Lawrence Herbert	1	E	Fort Wayne
Driscoll, Lawrence Edward	1	M	Louisville, Ky.
Drompp, Frederick Grahs	1	E	Logansport
Drumpelmann, Carlton Theodor	2	M	Detroit, Mich.
Dryfoose, Earl Daniel	4	C	Toledo, Ohio
Dudgeon, Dewey Gibson	1	Ch	Rochester
Dugan, Lawrence Bartley	P	l	Indianapolis
Dugger, Walter Mitchell	1	E	Dugger
Dukes, Elizabeth Mitchell	1	S	West LaFayette
Dunbar, Roscoe	1	M	Bowers
Duncan, William Christopher	1	A	Tunnelton
Dunham, David Hanon	3	S	Oxford
Dunham, Goldie Laura	W	S	Perrysville
Dunipace, Mary Marjorie	1	S	Bowling Green, Ohio
Dunkin, Harold Gleason	1	E	Sandusky, Ohio
Dunn, Guy Joseph	1	A	Wheatland
Dunn, James Edwin	1	E	Bowling Green, Ky.
Dunn, Jesse Malcolm	1	A	Indianapolis
Dunn, John Wesley	2	M	Cincinnati, Ohio
Dunn, Ruth Augusta	1	S	New Richmond
Durbin, Paul Conwell	2	E	New York, N. Y.
Durler, Russell Wallace	2	M	Indianapolis
Dyal, Paul Hayes	1	E	Odon
Dye, George Russell	1	M	Wolcott
Dye, Jane Elizabeth	4	S	Hammond
Dye, James William	1	M	LaFayette
Dynes, Donald LeGrand	1	Ch	Indianapolis
Eads, Frank	2	E	Roachdale
Eakins, Albert Leo	1	E	Fairmount
Earhart, James Carl	1	C	West LaFayette
Earl, Theodore Roosevelt	2	E	Niles, Mich.
Earle, Laurence	1	C	Broad Ripple
Earll, Robert Nathan	1	M	LaPorte
Eash, Effie Almeda	1	S	Shipshewana
Eastes, Leon	1	C	Mount Comfort
Eaton, Arthur Porter	1	E	Swayzee
Eaton, Henry Smith	1	M	Flora
Eaton, Nile Winton	1	A	Greenfield
Ebbinghaus, Hubert Theron	4	A	North Manchester
Eberhart, John Clyde	1	A	Flatrock

Ebershoff, Adelaide	P 1	LaFayette
Ebert, Roland George	2 M	Elwood
Eberts, John Foster	1 E	Jeffersonville
Edlund, Daniel Leonard	2 E	Fargo, N. D.
Edmonson, Charles Benjamin	3 A	Clayton
Edwards, Cecil Parker	1 M	LaFayette
Edwards, John Wesley	4 M	Noblesville
Edwards, Kenneth Lester	1 C	LaFayette
Edwards, Mary Jeanette	1 S	Danville
Edwards, Russel Dean	1 M	Stockwell
Edwards, Ralph Evan	1 E	Alexandria
Efroymson, Alfred Victor	1 C	Indianapolis
Efroymson, Meyer Solomon	2 C	Indianapolis
Eggeman, Reynold William	2 C	Fort Wayne
Egry, Charles Robert	2 M	Indianapolis
Ehrgott, Eugene Fielding	2 M	Indianapolis
Ehringer, James Walter	3 M	Jeffersonville
Eikenberry, Samuel Elwood	1 M	Forest
Eiler, Charles Kenneth	4 E	Winchester
Eisenhauer, Balthasar Bernard	2 E	Huntington
Ekstrom, George Fredrick	3 A	Brook
Ekstrom, Victor August	1 A	Brook
Ellabarger, Lowell Scudder	4 M	Piqua, Ohio
Ellenberger, Clarence Max	1 M	Indianapolis
Elliott, Floyd Elmer	2 A	Lucerne
Ellis, Hugh Madison	1 Ch	Muncie
Elsener, Laurence Alois	1 C	Newcastle
Emery, Everett Victor	4 E	New Carlisle
Emmert, Lewis Goddard	1 A	Greensburg
Engelhart, Waldemar Eugene	1 C	Jonesboro, Ill.
Engle, Harry	3 A	Pennville
Engle, Lee Owen	1 M	Bloomingdale
Enochs, Philip Henry	1 S	Fernwood, Miss.
Enriquez, Pedro Monzon	1 C	Pilar, Bataan, P. I.
Epler, John Lloyd	2 Ch	Toledo, Ohio
Erb, William Henry Lawrence	W S	McCoysburg
Ernst, Robert Sering	4 M	Madison
Erskine, Ralph Waldo	4 M	Zanesville, Ohio
Erwin, Golda Pauline	3 S	LaFayette
Erwin, Raymond Arthur	3 C	St. Petersburg, Fla.
Estabrook, Gaylord Beale	2 Ch	Toledo, Ohio
Estes, Charles Crawley	1 C	Chicago, Ill.
Estes, Don Cameron	3 C	Chicago, Ill.
Etsler, Walter Forest	1 E	Alexandria
Evans, Dewey Nile	2 C	Clermont
Evans, Edith Norton	1 S	West LaFayette
Evans, John Eugene	2 A	West LaFayette
Evans, Lowell	1 M	Sheridan
Evans, Maxwell Skinner	2 M	Chattanooga, Tenn.
Evans, Samuel Roscoe	1 M	Brazil
Ewald, Ardon Anton	1 C	Pentwater, Mich.
Ewbank, Earl Ambrose	4 E	North Vernon
Ewell, Lucius Frank	2 M	Dyer, Tenn.
Ewin, William Winstead	4 E	Franklin, Tenn.

Fahlsing Harry Wilson	1 C	Fort Wayne
Faller, Clyde Arlington	1 E	Roachdale
Fanning, Glen Dewey	1 A	Howe
Farfan, Robert Forero	3 E	Iquique, Chile, S. A.
Farr, Jay Edmondson	1 E	Van Buren
Farris, Herman	1 M	Blandinsville, Ill.
Fatout, Paul Leon	3 A	Indianapolis
Fauber, Dean Earl	2 C	Delphi
Fauntleroy, Hermanze Edwin	1 M	Evansville
Fawcett, William Hamilton	1 A	New Albany
Fay, Charles Robert	1 M	Indianapolis
Fechtman, Carl Daniel	2 M	Indianapolis
Fee, Herbert McClellan	2 E	Warren
Feldman, Earl Russell	1 C	South Bend
Feldman, Horace Wenger	2 A	South Bend
Felger, Calvin Blythe	2 C	Afton, Ia.
Ferger, Albert Herman	3 C	Lawrenceburg
Ferger, Hulbert Knight	4 M	Cincinnati, Ohio
Ferguson, Frank McHugh	3 Ch	LaFayette
Ferguson, Robert Elmer	1 C	Broad Ripple
Ferguson, Ruth Marguerite	4 S	Richmond
Ferguson, Ralph Raymond	3 M	Albany
Fertig, George Joseph	2 Ch	Louisville, Ky.
Fettig, Victor John	1 M	Logansport
Fillinger, Halbert Ernest	1 C	Dana
Finch, Lewis Spann	3 C	Indianapolis
Findling, Paul Henry	1 C	Valparaiso
Finehout, Frederick Robert	1 E	Indianapolis
Finley, Myron Barr	1 M	Brazil
Finney, Donovan Gossard	1 A	LaFayette
Fischer, Carl Louis	1 A	Evansville
Fish, John Ralph	1 E	Indianapolis
Fishack, Albert Caryle	1 C	Fort Wayne
Fisher, George Leroy	2 A	Danville
Fisher, Lawrence Levaun	1 C	Frankfort
Fitch, Emil Dewey	1 M	Indianapolis
Fitzgerald, Eugene Martin	1 M	Clark's Hill
Fitzgerald, John Paul	2 C	Indianapolis
Fitzgerald, Raymond Lawerence	1 M	Clark's Hill
Fitzgerald, William Francis	2 E	Portland, Ore.
Fitzgibbon, Clyde Robert	1 E	Seymour
Flack, Will Ritz	1 Ch	Boswell
Fleischauer, Earl LeRoy	1 C	Mulberry
Fleming, Wilbur Spencer	1 E	Warren
Fletemeyer, Helen Mary	1 S	LaFayette
Fletemeyer, Louise Sophia	2 S	LaFayette
Flock, Dee Aris	1 M	Bloomingdale
Foland, Merrill Leroy	1 M	Elwood
Follett, Juanita Martha	3 P	West LaFayette
Fonda, Lyman David	1 Ch	Elkhart
Foote, Lester Eugene	1 C	Antwerp, Ohio
Forbes, Raymond Franklin	2 Ch	Indianapolis
Force, Theodore Edgar	1 E	Cleveland, Ohio
Ford, John Laurence	3 Ch	Wabash

Ford, LeRoy	1 E	Clayton
Ford, Richard VanDyke	1 Ch	Wabash
Ford, Wilbur Edwin	4 M	Wabash
Fordice, Rudolph Guilliams	2 A	Russellville
*Foresman, Edward Bennett	2 C	LaFayette
Foresman, Robert Reiff	2 C	LaFayette
Forrest, Frank Ray	1 E	Waterloo
Fosbrink, Roy Lafayette	1 A	Vallonia
Foss, Winfred Labberton	1 M	Buffalo, N. Y.
Foster, Frank Stanley	W S	Ladoga
Foster, William Henry	1 S	LaFayette
Foster, Willis Raymond	1 A	Albion
Foust, Ruth Carol	4 S	LaFayette
Fouts, Everett Lincoln	1 C	West LaFayette
Fouts, Harold Morris	W S	Economy
Foutz, Karl Edmund	1 M	Altoona, Pa.
Fowler, Hobart Finley	1 M	Otterbein
Fowler, Percy Herbert	1 M	Pittsboro
Fowler, Raymond Bramell	1 M	Pittsboro
Frank, Charles Frederick	1 M	Lebanon
Frank, Graham Maxwell	4 M	Jeffersonville
Frankel, Walter Scott	1 M	LaGrange, Ky.
Franklin, George David	2 S	Terre Haute
Franklin, John William	1 M	Brook
Franks, Ralph Thomas	1 E	Garrett
Frasch, Henry Herbert	1 Ch	LaFayette
Fraser, Harold Milton	3 Ch	Evansville
Fraser, Perry Spencer	1 M	Delphi
Frederick, Hugh Taylor	1 A	Corydon
Frederick, William Bryan	1 M	Corydon
Freeland, Joseph Leo	1 C	Freeland Park
Freeland, Jackson Miller	1 A	Rensselaer
Freeman, Raymond Barrett	2 Ch	Indianapolis
Freezee, Walter Daugherty	2 E	Bunker Hill
Fretz, Charles Albert	1 M	Etna Green
Fretz, Hillard Clark	2 Ch	Sharpsville
Freyman, Walter LeRoy	1 Ch	West LaFayette
Friedman, Ivan	1C	Jasper
Friedman, Samuel	1 C	Muncie
Fries, Carl Gustave	1 M	Fort Wayne
Frost, Loren	1 Ch	Greenfield
Fruechte, Franklin Harold	1 E	Magley
Fry, Walter Edward	1 C	Bluffton
Fuller, Irene Mabel	4 S	Bryan, Tex.
Fuller, Lee Bernerd	1 M	Worthington
Fuller, Whitman Hamilton	2 Ch	Bryan, Tex.
Funck, George Clifford	1 M	Aurora
Funk, William Pfohl	1 E	Princeton
Furnas, Clifford Cook	1 Ch	Indianapolis
Furr, Mary Eleanor	2 S	Veedersburg
Futrell, Herkle McKee	1 A	Hartford City

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* Deceased.

Gabriel, David	3 M	Millville, N. J.
Gadbury, Wirth Burdell	3 A	Hartford City
Galpin, John Kennedy	1 M	Indianapolis
Gamrath, Harold Delbert William	1 C	Fort Wayne
Gano, John McLain	3 C	Piqua, Ohio
Gant, Earl William	1 M	LaFayette
Gappinger, Dale Mashon	1 M	LaGrange
Garcia, Miguel Yuson	1 C	Gapan, Nueva Ecija, P. I.
Gardner, Benjamin Martin	1 A	Mellott
Garman, Don Boynton	1 E	Claypool
Garner, Chester Alexander	3 A	Lebanon
Garrad, George Samuel	1 M	Indianapolis
Garrett, Russell Alger	2 E	Indianapolis
Garten, Frank Albert	1 M	Indianapolis
Gartner, Wilbur Harold	2 C	Mishawaka
Garver, Arlie Otis	3 E	Logansport
Gass, John Ralph	3 M	French Lick
Gast, Kathleen Marie	1 S	Akron
Gaston, Lindon Stevens	3 C	Columbus
Gates, Harold Hunter	1 Ch	Princeton, Ky.
Gaugler, Richard Sechrist	1 Ch	Dayton, Ohio
Gaul, William Fredrick	1 M	Dayton, Ohio
Gay, Elsie Beatrice	1 S	West Point
Gehr, Stanley Benjamin	3 C	Richmond
Gehrig, Albert Everett	1 M	Decatur
Geiger, John William	3 M	Hartford City
Gentry, Herschel Allan	1 M	Pittsboro
Gentry, Madge Louise	1 S	Rockport
Gentzler, Elmer	4 A	York, Pa.
George, Dorsey Roland	P 1	Evansville
George, Hugh Lloyd	2 C	Oolitic
Gephart, Charles Morgan	1 E	Liberty Center
Gerhard, Cuba Fredreicka	1 S	West LaFayette
Gerin, Fernand Leon	3 Ch	Linton
Geupel, Charles August	1 M	Evansville
Gilbert, Julian Arnold	1 C	Wolcott
Gillespie, Maxwell Maben	1 M	Chalmers
Gillespie, Norman Elvin	1 C	Peru
Gillespie, Vernon	1 Ch	Wabash
Gilliom, Walter Henry	1Ch	Berne
Gilmore, John Frederick	2 Ch	Chicago, Ill.
Gilmore, Mary Louisa	4 S	Watseka, Ill.
Gilsinger, Clarence John	1 M	Pulaski
Gipson, Grant Marshall	1 C	LaFayette
Gjerde, Melford Donald	4 M	Chicago Heights, Ill.
Gleason, Russell Emmett	1 Ch	Louisville, Ky.
Glessner, James Herman	1 C	Swayzee
Glossbrenner, Edgar Lutz	1 M	Jeffersonville
Glover, William Huffington	1 Ch	Greenfield
Glunt, Cliffie Franklin	1 M	Sheridan
Goble, Paul Newton	1 E	Greenfield
Goeke, Paul	1 C	Frankfort
Goldberg, Harold	1 E	Indianapolis
Golding, Hanley Clyde	1 M	Greentown

Goldsberry, James Francis	2	C	LaFayette
Goldsmith, Frederick Irving	3	S	Waterbury, Conn.
Goldthwaite, Robert Stuart	1	M	Marion
Gongwer, James Minnick	1	C	Washington, D. C.
Gonser, Bruce Winfred	1	Ch	Waterloo
Good, Charles Jonas	4	E	Warren
Good, Ethel Kathryn	3	S	LaFayette
Goodin, Daniel Roby	1	Ch	Winchester
Goodrich, Louis Walker	4	M	Wolcott
Gordner, LeRoy George	2	A	Boonville
Gordon, Curtis Inge	3	M	St. Louis, Mo.
Gordon, Clarence Oliver	1	A	Bluffton
Gordon, Thad William	2	Ch	Newcastle
Gordon, William Roydon	1	M	Spiceland
Gornall, Florence Mildred	3	S	Oxford
Goss, Edgar Keith	3	E	Indianapolis
Gossett, Jewell Clayton	1	A	North Salem
Gotschall, Paul Henry	3	E	Logansport
Gottfried, Blanche Lucile	2	S	West LaFayette
Gould, William Francis	1	M	Huntingburg
Grable, Joseph Patrick	1	M	Fort Wayne
Grabner, John	1	M	Warsaw
Grace, John Patrick	1	E	Chicago, Ill.
Grady, Paul James	1	E	LaFayette
Graeter, Russell Martin	4	E	Fort Wayne
Graf, Elmer Joseph	1	A	Evansville
Graham, Gordon	4	A	Bluffton
Gramelspacher, Clarence Urban	3	A	Jasper
Graper, Elmer	1	A	Lynnville
Gray, Adonis Lyle	2	A	Huntingburg
Gray, Clyde Willis	1	C	Petersburg
Gray, Frank Willard	2	M	Greensburg
Gray, Morris Beck	1	A	Rossville
Grayson, James Herbert	1	C	Georgetown
Greemann, Kenneth Louis	2	C	Seymour
Greemann, Omer Watson	2	Ch	Seymour
Green, Dwight Avenal	1	C	Rochester
Green, William Harrison	3	E	Cincinnati, Ohio
Greenan, Kenneth Weamer	1	Ch	Goshen
Greenawalt, Dennis Christopher	1	A	LaGrange
Greenberg, Raymond Benjamin	2	E	Pittsburgh, Pa.
Greene, Ralph William	1	M	Zanesville, Ohio
Greer, Henry Edwin	2	C	Woodward, Okla.
Greeson, Alvin Otto	1	M	Kokomo
Griffin, Bernard Eustus	1	Ch	Fowler
Griffin, William James	1	E	Elwood
Griffith, Calvin	s	A	Coal City
Griffith, Clyde Dorrence	2	A	Vevay
Griffith, Earl Ammon	1	M	Van Buren
Griffith, Paul Roger	2	C	Huntington
Griggs, Fred William	1	E	Indianapolis
Grigsby, Howard Dwight	2	E	Cleveland, Ohio
Grimes, Florence Rebekah	3	S	LaFayette
Griner, Harley Simon	3	M	Middlebury

Grissmer, Herbert Paul	1	Ch	Frankton
Grisso, Ralph Erret	1	C	Indianapolis
Grissom, Arthur Eugene	1	C	Newcastle
Grogan, Clarence Raymond	1	M	Otterbein
Gross, Frank Harold	1	A	Judson
Grove, Fred Eugene	2	E	Milford
Groves, Ermy Wade	s	A	Bridgeville, Pa.
Grubb, Irene Margaret	3	S	West LaFayette
Grubbs, James Taylor	4	M	Greenwood
Gruenert, Arthur John	1	M	Valparaiso
Grundy, Harry Bates	1	Ch	Taylorville, Ill.
Guard, John Luther	1	E	Camden
Guenther, Harry Molloy	1	M	Owensboro, Ky.
Gum, Pallas James	2	A	Winter Haven, Fla.
Gum, William Buford	2	M	Winter Haven, Fla.
Gundelfinger, Alan Max	1	Ch	Indianapolis
Gunder, Leroy Emmanuel	2	Ch	Chesterton
Guthrie, Glenn Albert	1	M	Linnsburg
Gwin, Forrest B	1	E	Farmland

Haag, Carl Edward	1	M	Lawrenceburg
Habegger, Amos	2	A	Berne
Hadley, Clifford Lawton	W	S	Clayton
Hagenbuck, Raymond Otis	2	E	Logansport
Hagenbuck, Walter Ellsworth	1	M	Logansport
Hagerman, James Johnson	3	M	Chicago, Ill.
Hagerty, Dewey Wallace	1	C	Howe
Hagey, George Lee	1	S	South Bend
Hagstrom, Carl Harold	1	S	Buffalo, N. Y.
Haley, Daniel Robert	3	M	Fort Wayne
Hall, Corydon Herbert	3	M	Alexandria
Hall, Glen Morton	1	M	Huntington
Hall, James Forsyth	2	A	Indianapolis
Hall, Lloyd	2	M	Springfield, Mo.
Hall, Max Coolman	1	E	Portland
Hall, Millard LaVon	3	A	Mays
Hall, Rudolph Frank	1	A	Lewisville
Haller, Harry William	3	A	Fort Wayne
Hamaker, William James	1	Ch	Peru
Hamilton, David	1	C	Bedford
Hamilton, Francis Alexander	2	E	Norwood, Ohio
Hamilton, Lucius Vachel	4	A	Indianapolis
Hamilton, Marie Louise	2	S	Rensselaer
Hamke, Timothy Edward Carl	4	A	Freelandville
Hammond, Arthur Roy	1	E	Winona Lake
Hamp, Emma Lydia	3	S	Indianapolis
Hampson, Harvey Sherman	1	C	LaPorte
Hancock, Arthur Draton	4	Ch	Salem
Hancock, Otis Merrit	2	E	Daleville
Haney, Lee	2	C	Hartford City
Hanley, Emil Wiley	P	l	Rensselaer
Hanna, Clinton Richards	1	E	Indianapolis
Hanna, George William	1	A	Roachdale
Hannagan, Stephen John	s	S	LaFayette

Hannah, Dewey Christopher	1 E	Swayzee
Hansel, Clarence	3 E	Carbon
Hansell, Clarence Weston	4 E	Medaryville
Hanshew, Howard Leslie	1 M	North Manchester
Hansing, Frederick Everitt	2 A	Indianapolis
Hanway, Herbert Thad	1 E	Monticello
Harding, Wilbur Thomas	1 E	Union City
Hardy, John Steril	4 A	Portland
Hare, Clyde William	1 A	North Vernon
Hargrave, George Edward	1 A	Chicago, Ill.
Harig, Mark Henry	3 M	Cincinnati, Ohio
Harker, Raymond Herbert	P 1	Tipton
Harless, Charles Alonzo	1 M	Union City
Harm, Arthur Carlisle	1 Ch	Clifford
Harman, Harold Llewellyn	1 Ch	Elkhart
Harness, George Clare	1 E	Galveston
Harper, Ruby Ellen	2 S	Modoc
Harrington, William Paul	1 E	Bicknell
Harris, Clifford Francis	1 C	Knightstown
Harris, Floyd Howard	4 E	Linton
Harris, Hueston Harry	1 E	Denver
Harris, Henry Parker	4 C	LaFayette
Harris, Ingle	1 M	Sheridan
Harrison, Benjamin Harold	1 E	Fort Wayne
Harrison, Cecil Eli	1 A	Monticello
Harrison, Emory Gornall	3 A	Oxford
Harrison, Garold Max	1 E	Camden
Harrison, Thomas Barrett	2 A	Indianapolis
Harshman, Henry Harold	P 1	Frankfort
Hart, Earl	2 M	Indianapolis
*Hart, Emery Allen	1 C	Wingate
Hart, Elmer Leroy	1 A	Montpelier
Hart, Paul L.	1 M	Warren
Hart, Wayne Francis	2 C	Fort Wayne
Harter, Lucy Margaret	P 1	LaFayette
Harter, William George	1 M	Peru
Hartke, George William	2 A	Huntingburg
Hartley, Joseph Vinson	2 E	Brazil
Hartley, Thomas Kirby	3 E	Otterbein
Hartman, Gladys Fay	2 S	West LaFayette
Hartwig, Ernest Herman	4 Ch	Wanatah
Harvey, Claude Eugene	1 A	Sheridan
Haseman, Russell Tennyson	3 E	Linton
Haskett, Harold Wright	1 E	Indianapolis
Hasler, Walter Howard	1 C	Knightstown
Hastings, Charles Milton	3 Ch	Washington
Hastings, Mary Lauretta	2 S	Washington
Hastings, Paul Arthur	1 C	Washington
Hatfield, Eugene Paul	1 C	Newcastle
Hatt, Kendrick Appleby	3 C	LaFayette
Hattery, John Stephen	1 E	Fort Wayne
Hatton, Alva Fayette	2 M	Burnetts Creek
Havens, Bernice Marie	3 S	Kokomo

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* Deceased.

Havice, Franklin Laity	3	M	Fort Wayne
Hawisher, Harold Henry	2	M	Lima, Ohio
Hay, Carl Roy	2	P	Union Mills
Hayden, Glen Edson	1	C	Muncie
Haymaker, Jack Arndt	2	Ch	Indianapolis
Haynes, Walter Clarence	4	A	Swayzee
Hays, Virgil	1	A	Parker
Hayward, James William	2	A	Helmer
Hazlett, Florence Rachel	1	S	Judson
Heaton, Howard Henry	1	M	Manilla
Heck, Clarence Louis	4	Ch	Fort Wayne
Heckard, Hugh Smith	3	A	Logansport
Hedden, Lyman Fay	3	Ch	Vincennes
Hedden, Noble Bond	1	M	Vincennes
Hedderich, Herman Frank	1	Ch	Indianapolis
Hedderich, William Edison	1	M	Mulberry
Hedgcock, Hugh Hastings	4	P	West LaFayette
Hedrick, Greger Linwood	1	M	Columbus
Heeter, Robert Lynn	1	S	Burnetts Creek
Hefner, Hubert V.	1	M	Delphi
Heine, Albert William	3	A	New Haven
Heinmiller, Clarence George	2	C	LaFayette
Heinzerling, Otto Carl	1	Ch	Garrett
Helfenberger, Harold William	3	M	Indianapolis
Heller, Walter Earl	2	A	Greenfield
Heller, Wallace Prindle	1	Ch	Indianapolis
Helton, Everett Ernest	1	C	New Castle
Hemmer, Clarence William	2	A	Seymour
Hemmer, Floyd John	1	A	Huntington
Henderson, Clarence Alton	1	M	Jonesboro
Hendry, James Bertrand	1	A	Kentland
Henke, Arnold Henry	4	A	Evansville
Henley, Harold Henry	2	M	Newland
Henry, Iva Ferne	1	S	Windfall
Henry, Julius Gilbert	3	A	Winamac
Henshaw, Howard DeWitte	W	S	Dunreith
Herdrich, Walter Franklin	3	M	Lebanon
Hereth, Willard Wells	4	M	Indianapolis
Herrin, Raymond Clyde	1	A	Hartford City
Herwitz, Sydney	1	E	Indianapolis
Heyde, Herman Fredrick	2	M	South Bend
Hiatt, Alfred Ronald	2	C	Richmond
Hickey, Harold Joseph	4	A	West LaFayette
Hickman, Dewey Noble	1	A	Depauw
Hickman, Virgil Irvin	1	M	Bunker Hill
Hilbish, Roy Arthur	W	S	Goshen
Hilderbrant, Russel	1	A	Dale
Hileman, George	3	Ch	Elwood
Hill, Clarence Franklin	4	Ch	Staunton, Ill.
Hill, Ezra Miles	1	M	Spiceland
Hill, George Frederick	1	A	Shelbyville
Hills, Donald Charles	2	Ch	Indianapolis
Hills, Warren Roy	1	M	Kendallville
Hilsmeier, Theodore Henry Wm	1	E	Huntingburg

Himmelwright, James Charles	1 M	Frankfort
Hinchman, Gladys	1 S	Brook
Hine, Lester Leland	1 M	Martinsville
Hiner, Zern Mitchell	3 A	Peru
Hippensteel, Claude Lorraine	3 Ch	Peru
Hirschmann, Egon Frederick	4 C	Michigan City
Hiser, Walter Carpenter	1 M	Indianapolis
Hissem, William Dae	1 Ch	South Whitley
Hitch, William LeRoy	2 C	Evansville
Hite, Earl Raymond	1 M	Plymouth
Hite, Harold Nesbit	3 M	Tipton
Ho, Yao	3 M	Yunnanfu, Yunnan, China
Hodges, Smith Lynn	3 M	Indianapolis
Hodson, Ivan	1 A	New Castle
Hodson, Ralph Lorenzo	2 C	Gary
Hoesch, Elmer Daniel	1 M	Bisbee, Ariz.
Hoffman, Herman Miller	1 Ch	Terre Haute
Hoffman, Wesley Harold	2 M	Valparaiso
Hofford, Raymond Harry	2 A	Modoc
Hoglund, Helge Gustave	1 M	Fort Wayne
Hole, Chester Thomas	4 E	Kendallville
Holliday, Lehman Ary	1 Ch	Indianapolis
Hollinger, Martha Elma	2 S	Union City
Holloway, Burdette	1 C	Syracuse
Holloway, Keith Harold	1 A	Colfax
Holmberg, Adrian Otis	1 M	South Bend
Holmes, Richard Beck	1 M	Jeffersonville
Holwerda, Harley Clark	1 M	LaFayette
Hood, Russell Arthur	2 M	Cleveland, Ohio
Hooper, William Donald	1 E	Bicknell
Hoover, George Peter	1 M	Rensselaer
Hopper, Roland Collins	1 M	Rosedale
Hoppmire, Willis Smith	2 E	Aurora
Horn, Robert Marion	1 A	Tippecanoe
Horner, Cecil Othello	4 S	Howe
Horner, Fred	3 E	Flora
Horrall, Burtis Elliott	2 A	Decker
Horstman, Elmer Henry	1 C	Brownstown
Horstmann, Herman Gerhard	3 Ch	LaFayette
Hose, Karl Martin	1 C	Crawfordsville
Hoshaw, Paul Jennings	1 E	Delphi
Howard, Galen Joseph	1 M	Cambridge City
Howard, Ray Gene	1 Ch	Lebanon
Hoyne, Blanchard Herbert	1 M	Dayton, Ohio
Huber, Elmer John Henry	1 M	Indianapolis
Huber, Guy Bonifield	1 A	Warren
Huber, Vergil Lewis	1 C	Wabash
Huckleberry, Nathaniel	3 M	Whitestown
Huddle, Ray Virgil	2 Ch	Napoleon, Ohio
Hudlow, Eva Cathrine	3 S	Clark's Hill
Huesing, Edith Helena	1 S	LaFayette
Huff, Mary Ramoth	3 P	West LaFayette
Huffine, Kenneth Wilbur	4 M	Kirklin
Hull, Julia Oma	2 S	Attica

Hull, Robert Winter	2	M	Connersville
Humble, George Livingston	3	M	Harrisburg, Pa.
Hume, Charles Duret	3	E	Lake Cicott
Hume, Robert Cumberland	4	A	Walton, Ky.
Hummel, Richard Jacob	1	C	Muncie
Hunlow, John Louis	2	M	New Albany
Hunt, Dorothy Lauretta	1	S	Marion
Huntington, Edwin Paul	2	A	Indianapolis
Huntsinger, William Ariel	1	Ch	Delphi
Hurley, Alice Elizabeth	1	S	West LaFayette
Huron, Willis Herbert	1	S	Tipton
Hurst, Alfred Coulter	1	M	Indianapolis
Hurst, Jonathan Ira	1	Ch	Rochester
Hurst, Robert Oren	1	E	Farmland
Hurst, William Alfred	1	M	Saint Paul
Hurtt, Robert Stewart	2	Ch	Gary
Husted, Lewis Ensign	3	A	Woodburn
Hutchens, Harold Clay	1	M	Winchester
Hutchens, Harold Hartman	1	A	Modoc
Hutson, Edward Francis	1	Ch	Fowler
Hyatt, Robert Beasley	1	C	Washington
Hyde, Edward Francis	4	Ch	Elmira, N. Y.

Igelmann, Wilber Olin	1	Ch	Indianapolis
Iliff, Ray	1	M	Rensselaer
Ince, Edward Vincent	1	M	LaFayette
Inskeep, John Jeremiah	2	A	Romney, W. Va.
Irelan, Andrew H.	4	E	Idaville
Irwin, Ora William	3	M	West Point
Isard, Reeves	1	M	Atlantic City, N. J.
Israel, Clarence Elbert	1	A	Birmingham, Ala.
Ivey, Charles Robert	1	S	Rochester

Jackman, Neal Dow	2	M	Attica
Jackson, Herman Edward	1	E	Greenfield
Jackson, Leyman Emmert	4	Ch	Lawrenceburg
Jagoe, Walker Marshall	2	C	Denton, Tex.
Jamison, Beatrice Elizabeth	4	S	LaFayette
Jamison, Mary	4	S	West LaFayette
Jamison, Robert Rosebery	4	A	West LaFayette
Jamison, William Cochran	3	A	Sullivan
Janney, Herman Carey	1	A	Alexandria
Jared, Norman William	1	E	Bridgeport
Jellison, Frank Rolland	1	M	Ridgeville
Jenkins, Florence	2	S	Bringhurst
Jenkins, John Bryant	1	M	West LaFayette
Jenkins, Lydia Geneva	2	S	West Lafayette
Jenkins, Mary	2	S	Bringhurst
Jenkins, Marvin	1	A	Martinsville
Jessup, Leland Ambrose	3	A	Mooresville
Jeup, Bernard Henry	1	Ch	Indianapolis
Johanningsmeier, Henry August	4	M	Sandborn
Johns, Fred Freeman	1	E	Bluffton
Johnson, Chester Henry	4	A	Clayton

Johnson, Henry Louis	1 Ch	South Bend
Johnson, Harry Verle	2 Ch	Oakville
Johnson, Louis Bragg	4 E	Milton
Johnson, Philip Benjamin	1 M	Indianapolis
Johnson, Russell Haynes	3 C	Indianapolis
Johnson, Raleigh Mack	3 M	Orleans
Johnson, Worth Arnold	1 E	Boswell
Johnson, Willis Donald	1 M	Vincennes
Johnson, Warren Hoff	1 A	Kendallville
Johnson, Walter Rudolph	3 Ch	Elkhart
Johnston, Thomas Robert	s A	Bluffton
Jones, Albert Chauncey	1 E	Battle Ground
Jones, Garland	3 M	Elwood
Jones, Herbert Edwin	1 E	Redkey
Jones, Halbert Frederick	1 Ch	Anderson
Jones, Herman Lee	3 A	Pine Village
Jones, Henry Stewart	1 M	Mobile, Ala.
Jones, James Harry	1 M	Wolcott
Jones, John Harold	1 E	Goodland
Jones, John Paul	1 C	Lynn
Jones, Marjorie	2 S	Wolcott
Jones, Pierre Edward	3 A	London, Ohio
Jones, William Robert	1 A	West LaFayette
Jong, Pu	s E	Yun Yong, Sje Chwan, China
Jonte, Leonidas Edward	2 M	Green Bay, Wis.
Jordan, Allen Hudson	1 A	Corydon
Jordan, Cecil Colla	1 M	Indianapolis
Jordan, Charles M.	1 Ch	Tipton
Jordan, Leota Lorella	4 S	Montmorenci
Jordan, Ruth	2 S	Danville
Joslin, Edwin Lee	3 A	Indianapolis
Jungclaus, William Henry	1 C	Indianapolis

Kaplan, Marcus Worrell	1 M	New York, N. Y.
Karn, Harry Daniel	1 Ch	Rochester
Kasch, Albert Edward	1 C	Webster Groves, Mo.
Kaster, Rudolph Edwin	1 M	Louisville, Ky.
Kauffman, Harry Hartman	1 A	Dauberville, Pa.
Kaufman, Aaron Rhode	3 E	Olney, Ill.
Kaufman, Charles Edward	1 M	Sullivan
Kaufman, Ford Herman	1 Ch	Peru
Kautsky, Frank Rudolph	1 E	Indianapolis
Kayser, Abner Merrill	1 A	Moscow, Ohio
Kayser, Charles Frederick	2 C	Moscow, Ohio
Keating, Thomas John	1 M	LaFayette
Keeler, Earl Lester	1 Ch	Indianapolis
Keeler, Robert	1 E	Valparaiso
Keenan, Lewis Champlin	3 M	Galveston, Tex.
Keilholz, Fred	3 A	Indianapolis
Keller, Philip Jacob	3 C	Tell City
Keller, Raymond Ordell	1 M	Monroe
Keller, Warren Hamilton	2 M	LaPorte
Kelly, Mary Ida	3 S	LaFayette
Kelly, Ralph	1 A	Howe

Kelly, Walter Joseph	4	M	Muncie
Kelsey, Frank Byron	1	M	Andrews
Kem, Edith Ione	3	S	Marion
Kem, Paul	1	E	Anderson
Kemper, Donald Bradford	1	E	Muncie
Kempton, Norman White	2	A	Haverhill, Mass
Kendall, Edwin Johnson	3	A	Indianapolis
Kendrick, Harry Deckard	1	C	Fort Wayne
Kennedy, Eugene Martin	1	A	LaFayette
Kennedy, Glenn DeFore	1	E	West LaFayette
Kennedy, James David	1	E	Quincy
Kenney, Muir Wells	1	C	Bloomington
Kennington, Robert Francis	1	Ch	Indianapolis
Kent, Vera Elsie	3	S	West LaFayette
Kenyon, Max Alfred	1	Ch	West LaFayette
Kenyon, Reid Lodowick	4	Ch	Dover, N. J.
Keough, William Francis	1	C	Indianapolis
Kepple, John Clay	1	C	New Augusta
Kerlin, Hiram Gregg	2	A	Delphi
Kern, Caryl Robert	2	Ch	Lebanon
Kern, John Edmund	1	M	LaFayette
Kerr, Ralph Cooper	1	A	Newton
Kessel, Howard Sandison	1	A	Brazil
Kessler, Frank Harold	1	M	Washington
Kiefer, William Ray	4	M	Washington
Kimberlin, Charles Milton	s	M	Indianapolis
Kimbley, Dorothy Beveridge	2	S	West LaFayette
Kinder, Arla M.	1	C	Arcadia
Kindig, Curtis Bryan	3	M	Kentland
King, Leland Thomson	1	M	Barboursville, Ky.
King, Walter	1	A	Rensselaer
Kingsley, Earl Monroe	1	E	Lawrence
Kinney, Aldon Monroe	1	M	South Bend
Kinney, Joel Fernando	1	Ch	Cincinnati, O.
Kinney, Paul Luther	1	Ch	Goshen
Kirby, Forrest Williard	1	M	Indianapolis
Kirk, James Theodore	3	A	Sullivan
Kirk, Park Fields	1	Ch	Spiceland
Kirk, Samuel Henry	1	M	Danville
Kirk, William Russell	W	S	Anderson
Kirkland, Jonathan Beeler	1	C	Rockport
Kirkpatrick, Ila Wilfred	1	E	Hartford City
Kirkpatrick, James Maddux	3	A	Raub
Kirkpatrick, Leaming Sayres	1	M	Romney
Kiser, Raymond Lawrence	1	Ch	New Albany
Klein, Jacob Edgar	1	C	Edinburg
Klendworth, Orville Atwood	2	E	Crawfordsville
Kline, Beatrice	1	S	LaFayette
Kline, James Archibold	2	M	Indianapolis
Klingler, Walter Russell	1	C	Fort Wayne
Klotz, John Albert	1	A	Arcadia
Klumpp, Russell Button	1	M	Lawrenceburg
Knapp, Basil Ward	1	E	Fortville
Knapp, Harry Jacob	1	M	Decatur

Knepp, Russell Henry	2 A	Bourbon
Knisely, Allen Stewart	4 A	Columbia City
Koch, Clifford William	1 A	Rochester
Koepke, Charles Augustus	3 M	Redfield, S. Dak.
Koester, Martin Edward	1 Ch	Fort Wayne
Kolb, Ruth Lenore	2 S	LaFayette
Kolb, Walter Charles	4 A	LaFayette
Konstanzer, Francis	1 M	Indianapolis
Koons, Esther Maxine	3 S	Elwood
Kopplin, Carl George	1 E	Green Bay, Wis.
Kornstein, Rose	s S	LaFayette
Kortepeter, Ruth Elizabeth	2 S	Indianapolis
Koss, Louis Fredrick	1 M	Indianapolis
Kramer, Harry Alfred	1 M	Muncie
Kremp, Edwin Maurice	3 C	Jasper
Krick, Walter Jennings	3 A	Decatur
Kriegbaum, Asa Walter	1 M	Huntington
Kriegbaum, Paul Brice	1 M	Huntington
Krieger, Gustave Wilbur	1 Ch	Brookville
Krieger, Robert Jacob	4 M	Louisville, Ky.
Kroh, Charles Weaver	1 Ch	Syracuse
Kuck, Edwin Richard	1 A	Botkins, Ohio
Kuebler, Edwin John	1 E	Jasper
Kuehn, Emil Gust	1 C	East St. Louis, Ill.
Kuehrmann, Otto William	1 Ch	Indianapolis
Kuespert, Raymond Dewey	4 M	South Bend
Kuhn, Fred William	3 Ch	Indianapolis
Kuhny, Earl Howard	1 C	Washington
Kuhr, Frank Edward	1 Ch	Brazil
Kuo, Hsi Tang	2 A	Wanchai, Hongkong, China
Kurtz, William Bruce	2 M	Indianapolis
Kuttler, John Benjamin	1 M	LaFayette
LaCroix, Leo Charles	2 C	East St. Louis, Ill.
Lacy, Paul Jackson	1 E	Rockford, Ill.
Ladd, Louise	2 S	Oxford
Lafuze, Harold Frank	3 A	Liberty
Laird, Samuel Franklin	1 A	Rockport
Lake, Ross	3 E	LaFayette
Lamb, Lillian Louise	4 A	Williamsburg
Lambright, Harold Raymond	1 M	Wolcottville
Lancaster, Forrest Wesley	2 Ch	Indianapolis
Lane, Leonard Byron	3 Ch	LaFayette
Lanigor, Howard Kerby	1 A	Garrett
Larson, Ivar	2 Ch	East Chicago
Larson, Raymond Francis	1 Ch	LaPorte
Lash, Harry Bernard	2 A	Martinsville
Laudeman, Vada Mae	2 S	Bremen
Lauenstein, Carl Frederick	1 E	Evansville
Laugel, Frank Philip	1 E	Jeffersonville
Laurents, Arthur	3 A	Fort Wayne
Laut, Harold William	1 E	Indianapolis
Lawell, John Herman	1 C	New Castle
Lawler, Glenn Sylvan	W S	West LaFayette

Lawler, Pauline Ruth	W S	Clark's Hill
Lawrence, Norbert Edward	2 E	Denver, Colo.
Laws, Merle Wade	1 C	Alexandria
Lawson, Parrvyn Reasoner	1 M	Indianapolis
Lay, Charles Henry	3 M	Indianapolis
Leach, Wallace Hinton	2 S	New Albany
Leamon, Harold Karl	1 S	Greenfield
Leathco, Charles Darwin	1 A	Gentryville
Leauty, Charles Herbert	W S	Indianapolis
LeBlanc, Francis David	s E	South Bend
LeBlond, John Knight	1 M	Cincinnati, Ohio
Lebo, Willard Elmer	1 Ch	Richmond
Leer, Wayne Everett	4 A	Fairmount
LeFavour, Laurence Giles	1 M	Marion
LeGrande, Harry Reno	1 A	North Vernon
Lehman, Harold Edward	2 M	Oskaloosa, Ia.
Leiendecker, Elmer Herman	4 A	West LaFayette
Leiendecker, Oscar William	1 C	Lawrenceburg
Leifer, Milo Clifford	3 Ch	Pierceton
Leighly, George Paul	1 Ch	Demotte
Lein, Ernest Love	3 E	Loogootee
Lemler, Arthur John ..	1 M	Bourbon
Lenfesty, Franklin Abbott	2 Ch	Marion
Lenhart, Hugh Henry	1 M	Brazil
Lenkensdofer, Willard Sanford	1 M	Winchester
Lesh, Lex	1 M	Indianapolis
Lesh, Mary Eliza	4 S	Burrows
Leuck, Clarence	1 A	Ambia
Leverenz, Byron Herman	1 M	LaFayette
Leverenz, Milton George	1 C	LaFayette
Lewellen, Emmons Freeman	1 M	Columbus
Lewis, Bevan Blau	2 C	Knightstown
Lewis, Ernest Paul	3 A	West LaFayette
Lewis, Edward William	2 M	Elwood
Lewis, Guy	1 E	Sullivan
Lewis, James Monroe	1 A	Arcadia
Lewis, Lawrence Raymond	1 P	Markle
Lewis, Sidney Everett	1 M	Elwood
Lewis, Stella Mae	W S	West LaFayette
Libey, Wade E.	1 A	Angola
Lichtenwalter, Devon Leo	2 Ch	Rochester
Licking, Ralph Herbert	1 Ch	Dillsboro
Liddell, Robert Patterson Field	2 M	West LaFayette
Liebrich, John Edwin	1 M	Indianapolis
Lilly, Joseph Mount	3 A	Tipton
Limper, Ernest August	1 M	Edwardsport
Linard, Loran Wilbur	1 M	LaPorte
Linden, Enoch Verinus	1 M	Chicago, Ill.
Lindley, Roy Waynick	3 M	Mitchell
Lindsay, Harry James	1 C	Columbus
Linehan, Michael Halpin	1 C	Cynthiana, Ky.
Lines, Dorn Taylor	2 C	Warren
Link, Alfred Henry	4 M	Springfield, Ill.
Linton, Clair Sterrett	4 A	Sheridan

Linville, Ray Braden	1	E	Fairland
List, Herman Charles	1	C	Knightstown
Little, Guy Allen	4	M	Remington
Little, Joseph Alfred	4	A	Lowell
Little, Seth Spry	2	A	Lowell
Litz, Robert Ray	1	Ch	Indianapolis
Liu, Kuh Tsen	4	C	Changsha, Hunan, China
Lloyd, Verne Thompson	1	M	Lowell
Lockard, Arthur	1	C	Linton
Lockhart, Byron Heber	3	A	Albany
Lockwood, Norman	1	C	Cicero
Loebig, Newland John	2	M	New Albany
Loehr, John Thomas	1	A	Greenfield
Lollar, Gordon Wright	1	P	Saratoga
Lommel, Conradina Henrietta	4	S	West LaFayette
Long, Bernice Gertrude	1	S	Rensselaer
Long, Grant Fredrick	2	C	Monon
Long, Raymond Everett	2	C	Dayton, Ohio
Longenecker, Ralph Dewey	1	A	Harrison, Ohio
Lonn, Earl Wendell	1	M	LaPorte
Lopez, George Humberto	4	C	La Paz, Bolivia, S. A.
Lorber, Abram	1	E	Indianapolis
Louderback, Roscoe	4	M	Rochester
Louth, Gracia Rising	3	S	LaFayette
Lowder, Raymond	2	A	Martinsville
Lowe, Harry Frank	1	E	Columbus
Lowe, Hoyet McKinley	1	M	Greenfield
Lowe, Mark Wilmer	2	M	Indianapolis
Lowery, Mearle Russel	1	E	Fishers
Lowman, LaGreta Blanche	3	S	Mulberry
Lowry, Vayne Arnold	4	A	Culver
Loy, Robert Bellville	1	E	Rensselaer
Lucas, Earl Cline	1	M	Frankfort
Luce, Forrest Edwin	1	E	Fort Wayne
Luckett, Maurice Moore	1	A	Indianapolis
Luginbill, Paul Christian	1	Ch	Berne
Luhring, Elmer Charles	1	E	Sunman
Lum, Sun	1	E	Kwantung, China
Lunney, James Edward	W	S	Indianapolis
Lupton, Fredric Grant	1	A	Hartford City
Luty, Karl	1	E	Bourbon
Lutz, Robert Dean	3	A	West LaFayette
Lyons, Paul Morris	2	M	Richmond

McArthur, Roscoe	1	M	Oaktown
McCabe, James Robert	1	A	Greencastle
McCain, Lawrence Warren	s	C	Indianapolis
McCally, Ross LaRue	4	A	LaGrange
McCarter, Walter	2	E	Odon
McCarthy, Edwin James	1	E	Horton, Kan.
McCarthy, John Francis	1	Ch	Chicago, Ill.
McCarty, Harry Harper	2	M	LaFayette
McCarty, Joseph William	2	S	LaFayette

*McCauley, Herbert Stahl	3	C	Meadville, Pa.
McClean, James Stoudt	1	A	Brookston
McCloud, Joseph Edward	1	E	Williamsport
McCloud, Lloyd Leroy	1	Ch	Liberty Center
McClure, Agnes Charline	4	S	Lebanon
McClure, Frank James	4	A	LaFayette
McClure, Glena Irene	3	S	Lebanon
McClure, Harold Alonzo	2	M	Indianapolis
McClure, Howard Stoker	1	A	Elwood
McClure, Merle	1	M	Pyrmont
McClure, Paul Chester Frank	1	M	Indianapolis
McClure, Raymond Augustus	1	M	Wheatland
McClurg, Donald Labaree	1	C	LaFayette
McCollough, Alameda Catherine	1	S	Stockwell
McColly, Harry Abbett	1	E	Rensselaer
McColm, Ralph Waldo	1	A	Gaston
McConaughy, Charles Wallace	4	S	Holdrege, Neb.
McConnaughay, Kenneth Earl	2	C	Fowler
McConnell, Frank Charles	3	A	West LaFayette
McConnell, John Alexander	1	M	Indianapolis
McConnell, Wayne Seeley	3	M	LaFayette
McCord, Harold Alexander	1	A	Indianapolis
McCord, Lois Hall	1	S	Attica
McCorkle, Francis Andrew	1	M	West Point
McCoy, Horace	1	M	Lake
McCoy, Herschell Bonner	1	E	Greensburg
McCoy, John Royse	3	A	Sullivan
McCracken, Sylvester Basil	2	Ch	Bringhurst
McCray, Elmore Smith	1	A	Kentland
McCullough, Gerald Eugene	2	M	Chalmers
McCullough, John Clemens	1	Ch	Indianapolis
McCullough, Will Andrew	1	A	Indianapolis
McDonald, Thomas Rinn	W	S	Williamsport
McDougle, William Elisha	2	E	West LaFayette
McElfresh, Ralph	1	E	Freetown
McEllhiney, William Alva	1	C	Princeton
McFarland, John Thomas	4	M	Mexico, Mo.
McGaughey, Gilbert Arthur	1	M	Veedersburg
McGeorge, Richard Hugh	3	M	Covington
McGill, John Cecil	1	M	Rossville
McGregor, Henry Hockmeyer	2	M	Birmingham, Ala.
McIlvain, Edgar Watson	1	E	Zionsville
McIlvaine, Hubert Allan	3	E	West LaFayette
McIntosh, Lorin Commodore	s	A	West LaFayette
McIntosh, Sidney Carroll	3	C	Enid, Okla.
McKay, John Francis	1	E	Noblesville
McKay, Milton Edmond	1	C	Five Oaks
McKee, Myron James	3	M	Indianapolis
McKim, Thomas John	1	Ch	Lawrenceburg
McKinley, Robert Harold	4	C	Willmar, Minn.
McKinney, Clarence Solomon	W	S	Hope
McKinstray, Neill	2	A	Fishers
McKinzie, Lloyd Alvin	1	E	Williamsport

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* Deceased.

McLain, Laurence Roland	1 M	Rensselaer
McLaughlin, Francis Marion	3 M	Portland
McLaughlin, Joseph Emmet	1 M	Fort Wayne
McLaughlin, John Ralph	1 E	Portland
McLaughlin, Lewis Patrick	1 M	Fort Wayne
McLeod, Paul Angus	4 Ch	LaFayette
McMahan, Edwin Love	4 Ch	Plymouth
McMahon, Robert Anthony	2 C	West LaFayette
McMath, Thomas Burnham	2 C	Indianapolis
McMeans, Wayne Fox	1 E	Indianapolis
McNary, Oran Harold	1 A	Fillmore
McVay, Virgil Reese	1 M	Coatesville

MacDonald, Robert Wallace	2 C	LaFayette
Macklin, Paul Revere	1 A	Bryant
Macy, Ishmael Wilford	2 E	Decatur
Madden, Edward Worner	1 Ch	Newport, Ky.
Madden, Michael Matthew	1 Ch	Newport, Ky.
Madden, Richard Francis	1 A	Indianapolis
Mager, Leo Roy	1 A	Garrett
Magruder, Roy	1 A	Indianapolis
Mahan, Wilbur Filmore	1 C	Lawrenceburg
Mahoney, Leo James	3 E	Indianapolis
Mahony, Ralph Harshbarger	1 A	Alexandria
Mahrdt, Carl Julius	1 E	Indianapolis
Major, George Marion	1 A	Frankfort
Malia, Mark Victor	1 Ch	Delphi
Malott, Alfred Frank	1 E	Indianapolis
Malott, Lloyd August	3 E	Bedford
Manhart, Vern Cleo	2 A	Prairieton
Mann, Oscar Paul	1 C	Independence
March, Francis Griffith	1 E	LaFayette
Markley, Max	2 A	Bluffton
Markley, Robert Edward	4 M	Shelbyville
Marriott, Virgil Kenneth	1 C	Rochester
Marsh, Carleton Jenkins	1 Ch	Muncie
Marsh, Orian Ray	1 A	Rockport
Marshall, Roland Bartel	1 E	Richmond
Marshall, Reuben Clifford	1 A	Upland
Marson, Ralph Franklin	1 Ch	Cambridge City
Martin, Arthur Raymond	3 C	Salem
Martin, Charles	1 C	Monon
Martin, Donald William	3 A	Terre Haute
Martin, Frank Dayton	1 M	South Bend
Martin, Harold Oliver	1 C	Pekin
Martin, Harry Raine	4 A	Chicago, Ill.
Martin, Lawrence Lowell	3 E	Ewing
Martin, Meta Eva	3 S	Elkhart
Martin, Paul Allyn	1 S	Columbus
Martin, Robert Lewis	1 A	Attica
Martin, Rex Riley	4 C	Fredericksburg
Martz, Norman Selman	2 A	Tipton
Mason, Charles Elsworth	4 A	Gas City
Massengill, William Kenneth	3 A	Henderson, Tenn.
Massey, Harold Orville	1 Ch	West LaFayette

Mast, George Alvin	3 M	Elkhart
Matern, Alfred Bernhard	1 Ch	South Bend
Mathieson, Hilda Mary	4 S	West LaFayette
Matthews, Bernard Joseph	1 M	Loogootee
Matthews, Juliet	3 S	LaFayette
Mavity, John Earle	2 C	Valparaiso
Maxwell, James Edgerton	3 A	Plainfield
Maxwell, Stewart William	1 C	Indianapolis
May, DeWitt Wallace	1 Ch	Fort Wayne
May, Leslie Hilton	W S	Alexandria
May, William Gordon	2 S	Alexandria
Mayer, Irvin Daniel	4 A	Indianapolis
Mayfield, Helen Lucretia	1 S	Jeffersonville
Mead, Carlos Oneil	1 E	Granville, Ill.
Mead, David	2 C	Kokomo
Mead, Raymond Franklin	2 A	Indianapolis
Meagher, Victor Paul	3 P	Terre Haute
Meahl, James Elmer	1 A	Vallonia
Meeker, John Edwin	1 E	Piqua, Ohio
Meeker, Stella Katherine	1 S	West LaFayette
Meeker, Stella Sheldon	s S	West LaFayette
Meese, Raymond Edward	1 S	Michigan City
Meglemre, Robert Woody	1 A	Bedford
Meigs, Samuel Gilman	1 S	Clark's Hill
Mellinger, Lloyd Smith	1 M	Columbus
Melton, Presley Warren	1 C	English
Menninger, Fred John	P 1	Tell City
Merchant, Ralph Edward	1 E	Texarkana, Tex.
Merica, Stanley Boyer	4 A	Francesville
Merkle, Roy Thomas	4 A	Claypool
Merrell, Leslie Malcolm	1 C	Galveston
Merrill, Claude Dix	1 C	Sullivan
Merriman, Helen Christine	3 S	Frankfort
Merriman, Merrill Vincent	3 E	Baltimore, Md.
Metzger, William Harold	1 A	Kewanna
Meyer, Elizabeth Florence	4 S	LaFayette
Meyer, Frank Oscar	1 M	Columbus
Michael, Herbert Byron	4 M	Toledo, Ohio
Michel, John Raymond	1 M	Indianapolis
Middleton, Elbert James	1 M	Peru
Mikels, Earl Wade	1 M	Morgantown
Mikesell, Walter Ray	1 C	Rossville
Milburn, Charles Albert	3 E	West LaFayette
Millbern, Merl	1 M	Bourbon
Miller, Allan Cameron	3 Ch	Indianapolis
Miller, Carl	3 A	Shelbyville
Miller, Charles Haven	1 A	West LaFayette
Miller, Francis Charles	1 A	LaFayette
Miller, Frank Smith	1 M	Lima, Ohio
Miller, Glen Leon	1 E	Whitestown
Miller, Harry Bockus	1 E	Goshen
Miller, John Ford	3 S	Richmond
Miller, John Fredrick	3 E	New Albany
Miller, Joseph Lee	2 C	Monon

Miller, Leo Darious	3 A	College Corner, Ohio
Miller, Norvan Dale	1 M	Burlington
Miller, Paul Krause	1 E	Mansfield, Ohio
Miller, Ralph Emerson	1 C	Fort Wayne
Miller, Raymond Frederick	1 C	Rochester
Miller, Russell William	1 M	Peru
Milligan, Elton LeRoy	2 A	Waveland
Milligan, Scott Wallace	1 A	Spencer
Milliken, Frederick Archibald	1 M	Moline, Ill.
Million, Herbert Waldsmith	2 A	Monticello
Mills, Glen Leon	1 M	Farmland
Mills, Harvey Fretz	2 M	LaFayette
Mills, Roscoe	3 C	LaFayette
Milner, Ralph Gregg	3 A	Mooresville
Milner, William Russell	1 E	Mooresville
Minor, Tarissa Joyce	1 S	LaFayette
Mitchell, Chester Floyd	3 E	Plain City, Ohio
Mitchell, Ernest Smith	1 A	Martinsville
Mitchell, Hugh Burton	3 M	Indianapolis
Mitchell, Helen Esther	1 S	Battle Ground
Mitchell, Paul Owen	4 C	Clayton
Mitchell, Russell Endley	3 A	Canton, Ohio
Mitchell, Ralph Ward	1 A	National City, Cal.
Mitten, George Dewey	3 C	Akron, Ohio
Modesitt, Ralph Hubert	1 M	Rockville
Moellering, Carl Willard	1 C	Fort Wayne
Mohler, Arthur Leroy	3 Ch	Fort Wayne
Mohr, Charles Philip	W S	Clifford
Molebash, DeWitt Harold	1 M	Bourbon
Moller, Herbert Stanton	2 Ch	Paducah, Ky.
Moller, Robert Arthur	1 Ch	Paducah, Ky.
Monahan, Orval Edward	1 C	Fairmount
Montgomery, Robert	1 A	Rockport
Moody, Bernice Viola	1 S	Fremont
Moore, Earl Rudolph	2 E	Indianapolis
Moore, Gerald Carl	3 M	Fort Wayne
Moore, Gilbert Foster	2 Ch	Morocco
Moore, Harry Clifford	1 E	Rensselaer
Moore, Lewis Douglas	3 C	Kokomo
Moore, Louis Halliday	1 C	LaFayette
Moore, Lee Samuel	2 Ch	LaFayette
Moore, Ola Byron	1 M	Scircleville
Moore, Robert Edmond	1 A	Rockville
Moorman, Hiram Thomas	4 E	Winchester
Morehead, Myron James	1 M	Greenfield
Morehouse, LeeOata Florence	4 S	LaFayette
Morehouse, Vivian Pauline	3 S	West LaFayette
Morgan, Bertha Jane	s S	Kokomo
Morgan, Claude Arnette	1 M	Huntington
Morgan, Harold Amsey	W S	Perrysville
Morgan, Noble	1 Ch	Kokomo
Morgan, Neal Dow	W S	Perrysville
Morgan, Oakley	4 A	Kokomo
Moroney, Edmond Joseph	1 E	Mt. Greenwood, Ill.

Morr, Justin Wheeler	W S	Albion
Morris, Keith	1 A	Lynn
Morris, Vlon	1 Ch	West LaFayette
Morrish, Ralph	3 A	Jonesboro
Morrison, John Taylor	1 A	Owensboro, Ky.
Morrison, Virgil Independent	2 A	Warren
Morrow, Harry Landell	1 C	Muncie
Morrow, James Lester	4 A	Princeton
Morrow, Lowell Kem	2 A	Marion
Morse, Delbert Arthur	1 M	Indianapolis
Morton, Floyd	1 E	Washington
Morton, Thomas Jesse	3 M	Evansville
Mosher, Arthur Otto	1 C	North Judson
Moss, Elias Herbert	3 A	Logansport
Mossman, Robert Burns	1 A	Treaty
Motsinger, Lester Paul	4 A	Orleans
Mott, George Cyrus	4 E	Miles City, Mont.
Mueller, Gretchen Josephine	4 S	Indianapolis
Mueller, Marie Lillian	1 S	Indianapolis
Mull, Jay Blount	2 Ch	Homer
Mullikin, William Ned	1 M	Franklin
Mulvey, Robert Raymond	4 A	Montmorenci
Munro, David Duncan	1 E	South Bend
Munro, Robert William	1 M	Indianapolis
Murphey, Margaret Elda	2 S	LaFayette
Murphy, Edgar English	1 M	Chicago, Ill.
Murphy, Elmer John	1 C	Tipton
Murphy, Frank Linedecker	1 M	Chicago, Ill.
Murphy, Harold Raymond	1 M	Lincoln
Murphy, Harry Rueben	4 A	Georgetown
Murphy, Leah Elizabeth	1 S	West LaFayette
Murphy, Robert Bartholomew	3 C	LaFayette
Murphy, Russel Dewey	1 A	Rochester
Murray, George R.	4 A	Grass Creek
Murray, Harold Elmer	1 A	Shipshewana
Myers, Lawrence Edwin	2 Ch	Cleveland, Ohio
Myers, Lester Quentin	W S	Hamilton

Nagle, John Clifford	1 A	Brookston
Naney, Edwin Paul	2 E	Petersburg
Neal, Donald Eskridge	4 E	Indianapolis
Neal, John Frederick	2 M	Connersville
Neale, Robert Louis	1 M	Union City, Mich.
Nease, Mary Donnah	1 S	Richmond
Neff, James Samuel	1 E	Sullivan
Neff, Leonard	2 A	Logansport
Neidigh, Darrel Overton	2 A	Saint Paul
Neihardt, Edith	2 S	Orland
Nell, Edward	2 M	Indianapolis
Nellis, Edwin Stanley	1 M	Topeka, Kan.
Nelson, Eleanor Margaret	4 S	Wolcott
Nelson, Frances Emily	4 S	Lowell
Nelson, James Newton	1 A	Indianapolis
Nelson, John Preston	1 M	Brookston

Nelson, Leon Harold	4	Ch	Davenport, Ia.
Nesbitt, Frank Thompson	2	E	Gas City
Nesbitt, William Seward	2	C	Dayton
Nessler, Friederich Walter	2	C	Indianapolis
*Newby, Herbert D.	1	M	Columbus
Newby, Roy Anthony	1	A	Seymour
Newkirk, Glen Dettbenner	1	E	Linden
Newman, Paul Irvin	1	S	Indianapolis
Newsom, Harold Banker	1	M	Elizabethtown
Newsom, Norris Pennington	1	M	Elizabethtown
Newton, Charles Edward	4	A	Macon, Ga.
Nichols, Merrill Wiseman	3	M	Winchester
Nichter, Albert Michael	3	A	Ockley
Nicol, Robert Ransom	4	Ch	Elmira, N. Y.
Niemann, Carl Otto	1	Ch	Indianapolis
Niemeyer, Walter Fredrick	2	M	Indianapolis
Niesse, Bernard Joseph	3	Ch	Madison
Nisley, Harry	1	A	LaFayette
Nixon, Ralph	1	A	Springport
Nolan, Melvin George	1	E	Cleveland, Ohio
Nolting, Carl Oscar	1	E	Columbus
Norman, John Robert	1	M	Macy
Norris, Harry Frank	W	S	Hope
Norris, Max Halleck	4	Ch	Frankfort
Nothhelfer, John Bernard	2	C	Chicago, Ill.
Nottingham, Wayne Buckels	3	E	Indianapolis
Nurnberger, Bernus Dee	3	A	Terre Haute
Nussbaum, Walter	1	E	Indianapolis
Nutt, Forrest Hershey	1	M	Carmel
Nutter, Gaston C.	1	E	Martinsville
O'Bannon, Robert Presley	2	M	Corydon
Oberlies, Jacob LaMar	3	C	Sheridan
Obold, Charles Taylor	2	Ch	Indianapolis
O'Brien, Frank Everett	1	A	Ridgeville
O'Brien, James Donald	1	M	Fort Wayne
O'Brien, Thomas Roscoe	1	E	Fort Wayne
Ogden, Augustus Clay	1	A	Laketon
Ogden, Edward	1	A	Roann
Ogden, Hubert Snyder	1	E	Plymouth
Ogden, Marcus Lindsey	1	M	Owensboro, Ky.
Oldham, George Heber	W	S	Connersville
Oldham, Horace James	1	M	Greenfield
O'Leary, Charles Joseph	2	E	Walkerton
Olney, Thomas Albert	1	C	South Bend
Oplinger, Kirk Augustus	1	E	Taylorville, Ill.
Orcutt, John	s	A	Indianapolis
Orr, Dorothy Olive	3	S	West LaFayette
Osborn, Dale Weidman	1	E	Hillsboro
Osborn, Frederic Verne	1	A	Rockville
Osborn, Laurence Lewis	1	M	Veedersburg
Osborne, Virgile	2	S	Tipton
Osburn, Harold Thomas	1	C	Shelburn
Osenbach, Mace	3	S	LaFayette

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*Deceased.

Oster, Walter Leslie	1 C	Georgetown
Ostrander, Leon Joseph	2 E	Mishawaka
Otten, Mary Opal	1 S	Rossville
Overdier, Paul Frederick	2 E	Racine, Wis.
Overesch, Frederic Webster	1 C	LaFayette
Overly, Catherine Anna	3 S	Battle Ground
Overstreet, Aaron Aubrey	1 M	Pittsboro
Overton, Alonzo Mount	W S	Odon
Owen, Carl Edward	P 1	Muncie
Oxer, John Gerould	1 M	McLeansboro, Ill.
Oyler, Joseph Bidwell	3 A	Thorntown
Oyler, Ralph Preston	2 A	Warsaw
Pacey, Guy Harold	1 E	West LaFayette
Paddock, Russell Gurney	3 M	Liberty
Padgett, Mildred Law	P 1	Morocco
Padou, Paul Francis	1 M	Indianapolis
Pagett, Howard Hampton	1 A	Fowler
Palmer, Carl Homer	2 P	Albany
Palmer, Earl Samuel	1 P	Albany
Palmer, Gaylord Armstrong	1 M	Washington
Palmer, Sanford Graham	4 M	Washington
Park, Louis Irving	1 M	Cincinnati, Ohio
Parker, Clifford Albert	1 A	Strawns
Parker, Druley	1 A	New Augusta
Parker, Edgar Robert	1 M	Pittsboro
Parker, Francis Blackmer	2 M	LaFayette
Parker, Gilbert Fredrick	1 E	LaFayette
Parker, Ruth Margaret	2 S	Carthage
Parkes, George Harry	3 M	Altoona, Pa.
Parkhurst, Frank William	3 M	Richmond
Parkinson, Helen Catharine	1 S	West LaFayette
Parnin, Maurice Joseph	1 Ch	Fort Wayne
Parsell, Lewis Butler	4 E	Angola
Parsons, Lawrence Potter	1 A	Bridgeport
Patrick, Duke Moyer	2 A	Paragon
Patterson, Harry Edwards	2 A	Thorntown
Patton, Richard Shelton	4 C	Savannah, Tenn.
Paul, Forrest Edward	1 M	Dayton
Peacock, Neal Dow	4 A	West Middleton
Pearcy, Noah Clyde	1 E	Dayton, Ohio
Pearson, John Reginald	1 A	Decorah, Ia.
Peden, Clarence Waldo	3 E	Union City
Pedlow, Herbert Edward	1 C	Indianapolis
Pegg, Paul Woodson	4 M	West LaFayette
Pence, Millard Davis	1 Ch	Columbia City
Pence, Raymond Glen	2 M	Brook
Pennington, Leslie Talbot	1 C	Spiceland
Perdiue, Howard Leroy	1 E	Muncie
Perkeypile, Lawerence Dow	1 S	Redkey
Perkins, Harold	1 C	LaGrange
Perry, Walter John	1 Ch	Rochester
Pershing, Sheldon Barsh	2 A	Odon
Peter, Maurice Gustavus	2 C	Mulberry

Peters, Howard Raymond	1 C	Mulberry
Pfeiffer, Clarence William	2 C	Ft. Thomas, Ky.
Pfeiffer, Paul John	2 E	Huntington
Pflasterer, Charley William	1 M	Winchester
Pfleeger, Nellie Frances	1 S	Oxford
Pfleiderer, Charles Arthur	1 E	Louisville, Ky.
Pherigo, Faun Stephens	1 Ch	Shelbyville
Phillips, Roy Barnes	1 A	Greenfield
Phipps, True	1 M	Amo
Pierce, Conway	3 M	Alamogordo, N. Mex.
Pierce, Clarence Owen	1 M	Bargersville
Pierson, Ralph Chester	1 Ch	Indianapolis
Pigg, Cecil Luther	3 A	Sullivan
Pilcher, Gerard Wendover	2 E	Louisville, Ky.
Pillow, Benjamin Maxwell	1 M	Dyersburg, Tenn.
Ping, Raymond Cecil	1 E	Indianapolis
Pipher, Joe	1 M	Winchester
Pirtle, Charles Lee	2 M	Sullivan
Pitcher, Lester	2 M	Trafalgar
Pittman, Eugene Frank	3 C	Indianapolis
Plain, Irving Frank	s C	Aurora, Ill.
Platt, Melvin Carlisle	1 M	Bringhurst
Pletcher, Elva Glen	4 S	Lowell
Plinke, George William	3 M	Louisville, Ky.
Plumb, Walter Jenkins	2 Ch	Huntington
Plummer, Clifford Roscoe	3 E	Indianapolis
Plummer, Evans Ellsworth	2 Ch	Indianapolis
Poe, Foster Dewey	3 A	Sheridan
Poe, Mabel Victoria	1 S	Sheridan
Poehlein, Otto Louis	1 M	Tell City
Polister, Gayle Vincent	1 Ch	Indianapolis
Polker, Arthur John	2 C	Napoleon, Ohio
Pollock, Willard Miles	1 M	Wolcott
Pomeroy, Harold Robert	1 M	Painesville, Ohio
Pond, Glen Ellis	1 M	Clifford
Pope, Wayne James	1 E	Linton
Popp, George Rudolph	4 M	Indianapolis
Porter, Frank Morton	4 A	Judson
Porter, Porter Chapman	1 M	Winchester, Ky.
Portteus, George Harold	2 A	Raub
Poston, Earl Herbert	1 C	New Castle
Pound, Howard William	3 M	Warsaw
Powell, Helen Elizabeth	1 S	West LaFayette
Powell, Lorie Charles	1 M	Tyner
Powell, Lloyd Francis	2 A	LaFayette
Powell, Lloyd Maledon	2 C	Michigan City
Powers, George Harvey	1 A	Spiceland
Prater, Mary Florence	2 S	Indianapolis
Prather, James Harold	4 A	Columbus
Prechtel, Lemuel Addison	2 M	Elwood
Pressnall, DeVer Dillon	1 E	Chicago, Ill.
Price, Manley Raymond	3 M	Rensselaer
Price, Melvin Robbins	1 M	Sullivan
Price, Ralph Adolph	1 A	Richmond

Price, Raymond Stalker	1 M	Indianapolis
Price, Ralph Whitmore	1 M	Bourbon
Probert, Edwin Harold	1 C	Covington, Ky.
Pruett, Robert Guerry	2 Ch	Indianapolis
Pruitt, Merrill White	1 M	Edinburg
Pryor, Anna Eleanor Ruddell	2 S	West LaFayette
Pryor, Horace Herbert	3 A	Lake Cicott
Pullins, Ronald Ellsworth	1 A	Medaryville
Purdum, Lloyd Elliott	3 M	Macomb, Ill.
Purget, Lawrence Jerome	3 Ch	Chalmers
Purvis, Boyd Jesse	1 C	Tipton
Pyle, William Russell	2 M	Bluffton

Quast, John Henry	1 E	Louisville, Ky.
Quick, Paul Rice	2 Ch	Delphi
Quill, Thomas Edwin	1 E	Indianapolis
Quillen, Frederick Merl	1 M	Trafalgar
Quinn, Millard	3 E	Delphi

Rabbe, Henry Theodore Willis	2 M	Hamilton, Ohio
Rader, Harold Ivan	1 E	New Castle
Radspinner, William Ambrose	4 A	Aurora
*Rainbolt, Rush Hannagen	2 A	Springville
Raines, Ivan Robert	1 M	Stockwell
Ralph, Albert Harisson	2 A	Sullivan
Ramsey, Helen Abbott	1 S	Sheridan
Randall, Randolph Clarence	1 C	Noblesville
Randell, Cortes Gilbert	3 A	Lawrenceburg
Randolph, Hazel Marie	1 S	LaFayette
Rapp, Harold	1 M	Wabash
Ratcliffe, Gleela Loraine	3 S	Veedersburg
Rate, Edwin Schellhase	1 M	Canton, Ohio
Raub, Nellie Alice Taylor	3 S	West LaFayette
Rauch, Karl Devern	3 M	Fort Wayne
Rauth, Adolph William	1 E	Boonville
Rawles, Richard Barnhart	1 A	LaFayette
Ray, Harry Edwin	1 A	Veedersburg
Reahard, Jean Franklin	1 M	Laketon
Reas, Victor Rudolph	1 A	Corydon
Reasor, Gerald Leroy	3 Ch	Kansas City, Mo.
Reasor, Howard Samuel	1 Ch	Kansas City, Mo.
Record, Manford Wendell	1 A	Wadesville
Redelsheimer, Harold Sidney	4 Ch	Vincennes
Reed, Kenneth Fredrick	1 E	Bourbon
Reed, Paul Everett	3 C	Alpine
Reed, Robert Tevis	1 S	Indianapolis
Reeder, Arthur Michael	3 Ch	Crown Point
Reep, John Theodore	1 M	Vincennes
Rees, Florence Helen	3 S	West LaFayette
Rees, James Edward	2 C	Cynthiana, Ky.
Reeve, Virgil Kenneth	1 C	Edwardsport
Reeves, Robert Franklin	3 S	Columbus

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* Deceased.

Reif, Clayton Everrt	1 A	Valparaiso
Reiff, Russell Godlove	3 A	Burnetts Creek
Reilly, Vincent Peter	1 Ch	Fort Wayne
Reinbold, Marion Clifford	1 A	Brownstown
Reinbold, Thomas Loren	1 E	Brownstown
Reinhart, Julius George	2 E	Kentland
Reish, Donald Carlton	2 E	Leiters Ford
Reitemeier, Marian	1 S	LaFayette
Reitz, Eleanor Mary	3 S	Evansville
Rentschler, Grace Anna	4 S	LaFayette
Replogle, Homer Mock	2 Ch	Altoona, Pa.
Reynard, Ronald Lee	1 A	Farmland
Reynolds, Arthur Charles	1 M	Indianapolis
Reynolds, Kenneth Byrum	1 A	Union City
Reynolds, Thomas McCaughan	1 Ch	Greensburg
Reynolds, Virgil Francis	1 M	Rossville
Reynolds, Xen Vestal	2 C	Marion
Rhamy, Lester Bogue	1 A	Wabash
Rhinehart, Robert Jarvis	1 E	Logansport
Rhoads, Edwin Peter	1 E	Rensselaer
Rhodes, Cyril	2 M	Rochester
Rhodes, John William	2 Ch	Indianapolis
Rhodes, Theodore David	1 E	Peru
*Rhude, Sherman Laurin	1 E	Columbus
Rich, Vilma	2 S	Indianapolis
Richardson, Elsie Glendon	1 S	Clayton
Ricker, George Granville	2 A	Lake
Rickert, Wayne	1 M	Ridgeville
Riggs, Elias Stewart	4 C	Newport, Ky.
Riggs, Harold Miller	1 M	Indianapolis
Riggs, Harold Turman	1 M	Sullivan
Riggs, Oral Byron	3 A	Shelburn
Rigsbee, Emerson	W S	Arlington
Rimstidt, John Taylor	2 A	Rockport
Rinard, Ralph Harper	1 M	Winchester
Rinehart, Russell Jenkins	2 E	Shelbyville
Ringgenberg, John Edward	1 M	Bremen
Rinker, Goldy Merril	1 E	Daleville
Ripley, Earl Frazier	3 A	Willshire, Ohio
Risch, Raymond Joseph	W S	Vincennes
Riser, Ralph William	1 C	Indianapolis
Rish, Howard Stewart	3 M	Wabash
Ritenour, Millard Battan	1 A	West LaFayette
*Rittgers, John Millard	1 E	New Paris
Ritzi, Harry	1 M	Brookville
Rives, Harold Dean	1 E	Shipman, Ill.
Roads, David Clarence	1 M	Logansport
Robbins, Alfred Rowland	1 A	Rochester
Robbins, Benjamin Harry	1 M	Indianapolis
Roberson, William Artrudoe	1 M	St. Louis, Mo.
Roberts, Hugh	1 M	Indianapolis
Roberts, Harry John	1 S	LaFayette
Roberts, Nathan Joseph	1 M	Kendallville

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* Deceased.

Roberts, Ralph Eldon	2	A	LaFayette
Roberts, Samuel Jemison	1	A	Connersville
Roberts, Wallace Medendorp	1	M	LaFayette
Roberts, Walter Merrell	1	M	Lake
Robertson, Jess Russel	2	C	Shelbyville
Robertson, Ray	2	P	Ewing
Robertson, Union Banner	1	C	Salem
Robison, Hilton Eldridge	4	A	Greenwood
Robling, Warner Thomas	1	Ch	Hazelton
Rockafield, Wilden Abraham	2	M	West LaFayette
Roderick, Ralph Wirt	4	A	Topeka
Rogers, Francis Joseph	1	M	Fort Wayne
Rogers, John Harold	W	S	Atlanta, Ill.
Rogers, Kenneth Lee	1	Ch	New Lisbon
Rogers, Lester Miles	1	A	Rochester
Rogers, Raymond Lee	3	A	Sullivan
Rohrer, Joseph Russel	2	Ch	New Paris
Roland, Robert John	1	C	Richmond
Roman, Felipe Reyes	4	M	Pilar, Bataan, P. I.
Rooker, Earle Jerome	3	E	Martinsville
Ropkey, Frederick Nobb	1	M	Indianapolis
Rose, Bertha Elizabeth	1	S	Rossville
Rose, Frederick William	2	A	Rossville
Rosenberger, Carroll Alonzo	1	C	Colfax
Rosenberger, Kenneth Sigler	1	C	Colfax
Rosenbush, Walter H.	1	M	Union City
Roskuski, Frank Carl	1	A	Flora
Ross, Elmer Ray	3	M	Wolcottville
Ross, Milton David	2	M	Monticello
Roth, Earl Andrew	1	E	Evansville
Roth, Frederich Charles	3	E	Cleveland, Ohio
Roth, Jay Dee	1	C	Rensselaer
Roth, Orval Otto	1	M	Ferdinand
Roush, William Glavious	1	Ch	Frankfort
Row, Elbert Arden	1	E	Brazil
Rowe, Elmer Clayton	4	A	LaFayette
Rowell, Rutherford Richie	1	E	Turon, Kan.
Rubey, Charles Robert	1	C	Winchester
Rubright, Roy	2	C	LaFayette
Ruby, Maurice	4	M	Fort Wayne
Rucker, Raymond Harry	1	C	Indianapolis
Rusk, Walter Urbane	1	A	Hillsboro
Russell, Max Edward	1	M	Sullivan
Russell, Richard Edmondson	1	C	Jeffersonville
Rust, Archie Dale	1	M	St. Louis Crossing
Ryan, David Gerald	1	E	Terre Haute
Ryan, Mary Elizabeth	2	S	LaFayette
*Ryan, Scott Newman	1	C	West LaFayette
Sabel, Daniel	1	M	Louisville, Ky.
Sage, Harold Macy	1	A	Rensselaer
Sammons, Harry Brown	1	A	West LaFayette
Sander, Carl Fredric	3	A	Evansville

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* Deceased.

Sander, Carl Henry	1	C	Fort Wayne
Sanders, John Wesley	1	A	Worthington
Sanders, William Burton	4	M	West LaFayette
Sanford, John Wood	1	E	Washington
Sappenfield, Venner Seward	1	M	Evansville
Scearce, Charles Glydon	2	A	Danville
Schad, Alfred Barth	1	M	Indianapolis
Schaefer, Arthur Rudolph	4	C	Tell City
Schaefer, Earl Herman	1	M	Columbus
Schaeffer, Oscar John	1	M	Troy
Schafer, Harold Fred	1	C	South Bend
Schakel, Raymond Anton	1	M	Indianapolis
Scharf, Theodore William	1	A	New Albany
Schell, Joseph William	3	A	Indianapolis
Schlee, Earl Hazen	1	Ch	Highland Park, Mich.
Schleter, George Harry	3	E	Seymour
Schmidt, Frederick Karl	2	A	Spencer
Schmitt, Harley Adams	1	E	Rochester
Schneider, Clarence Herbert	1	E	West Park, Ohio
Schneider, Raymond Arnold	1	A	Mt. Vernon
Schoen, Joseph Johnston	1	A	Brooklyn
Schofield, Louis Bernard	4	Ch	Madison
Scholz, Edwin Louis	1	M	LaPorte
Schomp, Jesse Ray	1	M	Garrett
Schowe, Ernest Roscoe	2	A	Sellersburg
Schrass, Marie Elizabeth	2	S	West LaFayette
Schroyer, Edgar Campbell	2	M	West LaFayette
Schuessler, John Clarence	4	M	LaFayette
Schug, Velma Tilla	2	S	Berne
Schultz, Byron William	3	E	Valparaiso
Schultz, Marion Ingersoll	1	E	Cincinnati, Ohio
Schulz, Myron Lorin	1	M	Indianapolis
Schwaninger, Joseph Leeper	2	M	Jeffersonville
Schwartz, Melvin Henry	1	M	Vincennes
Schwartzkopf, Clarence Joseph John	1	M	Columbus
Schwarz, Clarence Eugene	2	E	Princeton
Scoonover, Nellie	4	S	LaFayette
Scott, Angus Cleon	2	A	Milford
Scott, Gladys May	3	S	Marshall
Scott, George Randolph	4	A	Edinburg
Scott, Howard Bertman	1	C	Greenfield
Scott, James Lewis	W	S	Greentown
Scott, William Martin	1	M	Jeffersonville
Scudder, Gerald Armen	1	C	Florence
Sears, Harold Leon	1	C	Bedford
Sechrest, William Berry	1	C	Wheatland
Secor, John Maurice	4	Ch	Bronson, Mich.
Secoy, Everett Guild	1	E	Bedford
Secrest, Russell Adams	1	C	Indianapolis
Sedgwick, Theodore	1	A	Richmond
Seelinger, Horace Dennison	2	E	Seymour
Sellars, Claire John	2	A	Mooresville
Sellars, Sumner A.	1	A	Mooresville
Sellers, Benjamin Franklin	3	A	North Salem

Sellman, Hunton Dade	1	Ch	Washington
Sevedge, Wallace Archabald	1	E	Princeton
Sewell, Greta Geneive	2	S	West LaFayette
Seybold, Cleo Raymond	1	E	Rockville
Shade, Homer Winfred	1	A	Veedersburg
Shafer, Jack Shanghai	3	M	Valparaiso
Shanklin, Wilmetta Bard	3	S	West LaFayette
Shao, Yang Hsien	s	E	Yunnanfu, Yunnan, China
Sharp, John Wesley	1	Ch	Logansport
Sharpe, Lillian Lessie	W	S	Linton
Shatz, John Ralph	1	M	Valparaiso
Shaw, Harry Cecil	1	E	Boonville
Shaw, Omer Matthew	2	M	New Augusta
Shaw, Richard Conine	1	C	Dayton, Ohio
Shaw, Robert Leland	1	C	Springport
Shaw, William Colmell	1	E	Star City
Shea, Henry John	4	Ch	Cincinnati, Ohio
Sheetz, Leroy Templeton	1	M	West LaFayette
Shelby, Homer	1	C	Greenfield
Shelby, Ruth Clark	3	S	West LaFayette
Shenefield, Warren Allen	1	A	Plymouth
Shepard, Robert Oscar	2	E	Seymour
Shera, Nina Sarah	2	S	Richmond
Sherrill, Elvin Gerney	1	M	Otterbein
Sherwin, Marion Eloise	2	S	Indianapolis
Sherwood, Donald Henry	3	C	Watervliet, Mich.
Sherwood, Frank Townsend	1	Ch	Bedford
Sherwood, Richard Lyon	2	M	Watervliet, Mich.
Shewmaker, Joseph Henry	1	C	Muncie
Shields, Francis Willard	1	Ch	Wabash
Shierling, Evan Vance	1	A	Ridgeville
Shierling, Maurice Philip	4	A	Ridgeville
Shimer, William Ralph	2	M	Indianapolis
Shipley, Frank Wendell	2	Ch	Rochester
Shirk, John William	1	E	Monroe
Shirley, Wendell Alton	1	M	Danville
Shively, Eugene Teeter	1	S	Mt. Summit
Shlensky, Abram	2	C	Hammond
Shoemaker, Robert Radcliffe	3	C	West LaFayette
Short, Truman George	1	C	Indianapolis
Shoup, Mary Kathryn	P	1	Warsaw
Showalter, John McNaughton	2	E	Connersville
Shrode, Myler Ray	4	A	Rockport
Shryock,, John Russell	2	E	Princeton
Shufelt, Norman Dewey	1	C	Petroleum
Shultheis, Clarence David	1	A	Delphi
Shumaker, Faye	4	S	West LaFayette
Shumway, Donald Lee	1	C	Greenfield
Sidebottom, Paul McCabe	1	E	Chandler
Siegesmund, John Conrad	4	Ch	Wanatah
Sier, Gordon Edgar	1	Ch	Elkhart
Sieveking, Earl Gwin	3	A	New Albany
*Silvey, Charles Johnston	4	A	McCordsville

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* Deceased.

Simpson, Robert Tracy	3	Ch	Elmira, N. Y.
Sims, Charles McFarlane	1	Ch	Goshen
Sims, Seth Dewey	3	A	Elnora
Sisloff, Lester Frank	1	M	New Albany
Skelly, John William	4	M	Muncie
Skinner, Sylvan Jennings	1	C	Bridgeport, Ill.
Slater, George Greenleaf	1	A	Indianapolis
Slocomb, Charles Raymond	2	Ch	East Chicago
Small, Clifford Allen	1	A	North Vernon
Small, Frances Re	4	S	Franklin
Small, Ian MacLaren	P	1	Indianapolis
Smallshaw, John Mills	4	M	Coldwater, Mich.
Smiley, Vern Newton	P	1	Kansas, Ill.
Smith, Alfred Dewitt	4	M	Colfax
Smith, Carlisle Forrest	4	M	Kokomo
Smith, Dallas Myrle	4	M	Indianapolis
Smith, Fred Alexander	1	E	Montpelier
Smith, Fred Crawford	4	Ch	Marion
Smith, Frederich Schmedel	1	M	Indianapolis
Smith, George Andrew	1	S	LaFayette
Smith, Geraldine Frances	1	S	Frankfort
Smith, Gladys Ruth	1	S	West LaFayette
Smith, George Schuyler	2	M	LaGrange
Smith, Harold Hornaday	2	A	Zionsville
Smith, Harry Leora	1	A	Markle
Smith, Henry Oliver	1	E	Bedford
Smith, Hiram Ralston	1	M	Aurora
Smith, Horace Wilbur	1	E	Fort Wayne
Smith, Merrill Harter	1	E	Indianapolis
Smith, Morris Horatio	1	S	LaFayette
Smith, Margaret Lucille	2	S	Montmorenci
Smith, Marvin McCammon	3	A	Canton, Ohio
Smith, Omer	1	M	Macy
Smith, Oscar Beecher	2	A	Frankfort
Smith, Orth Perry	1	M	Bedford
Smith, Raymond Chase	2	Ch	Richmond
Smith, Roscoe C.	W	S	Rossburg, Ohio
Smith, Roy Edward	1	C	Montpelier
Smith, Russell Hughes	1	C	Indianapolis
Smith, Ruby LaVern	1	S	Tipton
Smith, Roy Reynolds	3	E	Dayton, Ohio
Smith, Robert William	1	Ch	North Manchester
Smith, Sharon LaMarr	1	E	Poplar, Mont.
Smith, Voris Leo	1	A	Paragon
Smith, William Arthur	4	A	Montmorenci
Smith, William Britton	1	M	Tucson, Ariz.
Smith, Wilbur Foster	2	Ch	West LaFayette
Smith, Walter Robert	1	A	Brookville
Smith, Wendell Sharp	1	S	Bluffton
Smith, Zora Mayo	4	A	West LaFayette
Smyth, John Robert	3	A	Morgantown
Snider, Wallace	2	Ch	Oak Harbor, Ohio
Snoddy, Zella Marie	4	S	West LaFayette
Snoke, Harold Heed	1	M	Indianapolis

Snow, John Virgil	2 E	Seymour
Snowball, James Lewes	1 C	Indianapolis
Sofnas, Samuel	1 M	Indianapolis
Solbrig, Hardin Elsby	1 M	Dexter
Souders, George Raymond	1 M	LaFayette
Spake, Louise Esther	3 S	Monroeville
Spangler, Harold Edward	1 A	Kentland
Spears, Robert Gerald	3 A	North Salem
Specht, Max Henry	2 E	Valparaiso
Spector, Hannah Elbra	s S	LaFayette
Sperry, Neil	1 M	Noblesville
Spindler, Roy Warren	2 E	New Haven
Spinning, John Adamson	2 A	Covington
Sproat, Gladys Juanita	4 S	West LaFayette
Spurgeon, Samuel Josiah	1 E	Michigantown
Spurgeon, William Avard	1 E	Franklin
Stackhouse, Dewey William	1 E	Battle Ground
Stacy, Russell Maddux	3 Ch	Rochester
Stafford, Lawrence Tilghman	1 A	Frankfort
Stager, Henry Gear	1 M	Carthage
Stair, Carlyle Baer	1 E	Frankfort
Stair, Otis Walter	3 A	Frankfort
Stallsmith, Burr Franklin	1 A	Hartford City
Stamm, Lewis Alonzo	1 A	Indianapolis
Standley, George Oscar	3 A	Plainville
Stanley, Aubrey Henry	1 A	Albion
Stanley, Foster Lee Roy	3 E	Ladoga
Stanley, Glenn Vernon	3 A	Ladoga
Stanwood, Charles Carson	2 S	Needham Heights, Mass.
Starbuck, Harold Allen	1 E	Haskell, Okla.
Starr, John Bernal	4 M	Muncie
Stech, Ernest Herbert	1 M	Warren
Steele, Paul	2 A	Mount Comfort
Steen, Adolph Frederic	1 M	Chicago, Ill.
Stellings, Laurence George	2 C	Washington
Stemm, Corinne Virginia	2 S	West LaFayette
Stenicka, Charles Edward	2 E	Omaha, Neb.
Stephens, Robert Elder	1 A	Terre Haute
Stephenson, Neva May	4 S	Sheridan
Stephenson, William Lewis	1 M	Linden
Stepleton, Harold Austin	2 M	Lima, Ohio
Stetter, George Charles	3 M	Muncie
Steup, Howard Harold	4 A	Fort Wayne
Stevens, Ruth Lucille	1 S	Taylorville, Ill.
Stevenson, George Edward	1 C	Rockport
Stevenson, Robert Hugh	2 A	Brazil
Stevenson, William McHenry	1 C	Indianapolis
Stevenson, William Nelson	2 E	Rockville
Stewart, Charles Smith	1 C	Fowler
Stewart; Paul Bryant	1 Ch	Elwood
Stewart, Simeon	4 C	Rushville
Stieglitz, Valentine Henry	1 A	Elwood
Stillinger, Ray Alton	1 M	Brimfield
Stipp, Arthur Emmitt	1 M	Bedford

Stockton, James Wolverton	1 E	Sparta, Ill.
Stockton, Wholston Vanderbilt	4 E	Sparta, Ill.
Stoelting, Gilbert John	3 C	Edwardsport
Stoever, Alfred Christian	2 M	Evansville
Stoever, Edward Carl	1 M	Evansville
Stoffer, Arden Edward	1 M	Bourbon
Stone, Clarence Jefferson	1 M	Bringhurst
Stonehill, Charles Myers	1 M	Brook
Stonehill, Forry	3 M	Brook
Stoner, Bessie May	3 S	Oaklandon
Stoner, Emory Wayne	2 E	Valparaiso
Stormer, John Ennis	1 E	Indianapolis
Stormont, Lowell Heston	1 C	Indianapolis
Stouder, Glenn Roscoe	1M	Andrews
Stoudt, Robert Ruben	1 C	Remington
Stouffer, Earl Ellwood	W S	Wabash
Stough, Paul Samuel	1 E	Frankfort
Stough, Russell Harvey	1 M	Union City
Strack, Maurice Claude	1 M	New Albany
Strait, Chelcie Leo	1E	Middletown, O.
Strang, Dolph Raymond	1 M	Tyner
Strickler, Paul Johnson	3 Ch	Narberth, Pa.
Strout, Charles Beckett	1 M	Bedford
Strubbe, Edward Harte	2 M	Cincinnati, Ohio
Stuart, John Mark	3 A	Burnetts Creek
Stubbs, John Raymond	3 A	Thorntown
Stucker, John Roscoe	1 E	Veedersburg
Studley, Elbridge Gerry	3 C	Mishawaka
Stultz, Raymond	1 M	Huntington
Stultz, Roger Wilson	1 E	Modoc
Stuppy, George William	3 A	West LaFayette
Sturgis, James Becker	1 M	Bluffton
Stuteville, Edward Sargent	1 M	Rockport
Sullivan, Stephen Ward	1 Ch	Sidney, Ohio
Summers, George Wilfred	1 M	Indianapolis
Sumpter, Dee Miller	1 M	Lebanon
Surbaugh, John Warren	1 M	Vincennes
Surprise, Glenn Mark	1 M	Lowell
Suter, Russell	1 M	LaFayette
Sutton, James Herbert	1 C	Clay City
Sutton, Winfield Alexander	3 Ch	Decatur
Suverkrup, Arthur Newby	1 Ch	Columbus
Swab, Bernal Henry	2 C	Altoona, Pa.
Swaim, Ira Hunt	1 A	LaFayette
Swaisgood, Paul Bliss	3 E	Indianapolis
Swan, John Wesley	1 E	LaGro
Swann, Jesse Ralph	1 A	Washington
Swatts, Florence Isabelle	1 S	Delphi
Sweeney, Edward Albert	1 E	Norwood, Ohio
Sweets, Joseph Edwards	2 E	LaFayette
Switzer, Margaret Catherine	1 S	West LaFayette
Sykes, James McGavin	1 M	Shelbyville

Taft, Charles Dwight	1	E	Logansport
Talbott, Edward Paul	1	E	Indianapolis
Tang, Chen Yew	2	A	Nan-Cheon, China
Tankersley, Donald Russell	1	A	Frankfort
Tappan, Joseph Ewing	2	C	Liberty
Taylor, Franklin Sylvester	2	A	Montmorenci
Taylor, George Osborn	1	E	Indianapolis
Taylor, Howard Francis	1	M	Macy
Taylor, John	1	M	Newburgh
Taylor, James Russel	1	M	Odon
Taylor, James Stanley	1	E	Rosedale
Taylor, Robert Ernest	1	S	Pendleton
Taylor, Robert Neville	2	M	Montmorenci
Taylor, Ross William	2	C	Indianapolis
Taylor, Susan Lois	1	S	LaFayette
Teal, Donald Christian	1	C	Arcadia
Temple, Heber Holbrook	1	C	Pittsburg, Pa.
Templeton, Hubert Ford	4	M	Saint Paul
Terman, Eva Mabel	4	S	Larwill
Tharp, Alvan Amos	2	E	Montpelier
Tharp, Floyd Oscar	s	A	Monticello
Thayer, Joseph Jackson	3	M	West LaFayette
Thielens, Wagner Perrin	1	E	South Bend
Thomas, Christopher Yancey	2	M	Topeka, Kan.
Thomas, Fred	1	A	Mt. Vernon
Thomas, Gilbert	2	A	Pimento
*Thomas, Harry Clark	1	S	Rossville
Thomas, Kingdon Smith	1	C	West LaFayette
Thomas, Paul Francis	2	E	Indianapolis
Thomas, Rosemarie	4	S	Battle Ground
Thomas, Russell Eugene	W	S	Greencastle
Thomas, Virgil Bryan	1	Ch	Portland
Thomasmeyer, Robert Earl	1	A	Dana
Thompson, Charles Fredrick	1	C	Frankfort
Thompson, Clyde Merrell	1	A	Cortland
Thompson, David Hiram	4	S	Dayton
Thompson, Dorothy May	1	S	Dayton
Thompson, Edgar Laurence	2	M	Scipio
Thompson, Gale	1	E	Brownstown
Thompson, James Ralph	4	A	Cortland
Thompson, Mary Elizabeth	1	S	West LaFayette
Thompson, Orrel Maulsby	1	E	Blountville
Thompson, Orville William	1	A	Columbus
Thompson, Stanley Brown	1	M	Indianapolis
Thoms, Harold Herman	1	M	Indianapolis
Thornburg, Herbal Adolph	3	E	Anderson
Thorp, Vaughn Penfold	4	E	Warren
Thuerk, Hugh Campbell	4	E	Buffalo, N. Y.
Tibma, Geert	1	E	LaPorte
Tilson, Donald Heath	3	Ch	LaFayette
Timmons, John Carl	1	A	Colfax
Timmons, Ronald Emmerson	1	E	Monticello
Toby, Fred	1	E	Rileysburg

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* Deceased.

Todd, Marion Wesley	3	C	New Haven
Tomey, Dale Owen	1	C	Elnora
Tomey, Gail Hastings	1	C	Elnora
Tomlin, James Harvey	1	Ch	Indianapolis
Towle, Howard Albert	3	M	West LaFayette
Tracey, Ford Patrick	1	Ch	Jeffersonville
Tracy, Merle	1	C	Eagletown
Tranter, Watson Worcester	3	Ch	Covington, Ky.
Trask, Verne Alva	3	M	Indianapolis
Trefz, Charles Frederick	4	C	Greenwood
Treida, Urban William	1	M	LaFayette
*Trembly, Alta Mae	2	S	Columbus
Trembly, Ray Houk	1	M	Columbus
Triggs, Lawrence Fuller	1	M	Huntington
Trine, Clarence William	1	E	Milton
Troth, Lee Stone	3	P	West LaFayette
Trotter, William Fred	1	A	North Salem
Troxel, Frank Raymond	1	M	Mulberry
Truax, Willis	W	S	Stilesville
Trueblood, Mark Sherwin	1	M	Marion
Truex, Russel	1	M	Plymouth
Trump, Lyle Franklin	1	E	Lowell
Trusler, Eldon Napoleon	3	C	Weiner, Ark.
Truss, Damon	2	E	Wabash
Tsao, Ming Luan	2	Ch	Honan, China
Tucker, Thayer Talbott	1	C	Logansport
Tuesburg, Arthur Cox	2	E	Knox
Tufts, Frank Lee	1	M	Aurora
Tumey, John Iris	2	S	West LaFayette
Turley, Helen Mabel	1	S	West LaFayette
Turner, George Grant	1	A	Tribune, Kan.
Twibell, William Swenson	1	A	Montpelier
Tyler, Donald Wilson	1	M	New Albany
Tyner, Carl	1	A	Sharpsville

Uland, Harry Elmer	1	A	Vincennes
Ulery, John Weaver	1	M	Nappanee
Ulrey, George Vernon	1	M	Andrews
Ulrich, Edward Huber	s	M	Sharpsville
Underhill, Joseph Lemon	1	M	Fort Wayne
Utterback, Arthur Oakes	2	C	Tipton

Vaile, George Frederick	1	M	Logansport
Van Arsdel, Fred Kenneth	2	M	Indianapolis
Vance, Harold Eugene	1	M	Washington
Vance, Louis Roy	2	Ch	Racine, Wis.
Vandenbark, James Howard	1	M	Wilkinson
VanderHaeghen, Maurice Peter	1	M	Mishawaka
VanDeventer, Susan Manning	2	S	Veedersburg
Vandiver, Roscoe Herman	1	E	Huntington
VanEaton, Ralph Norman	1	A	Frankfort
VanLandeghem, Charles John	4	M	West LaFayette
Van Pelt, Chester	1	A	Winchester

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* Deceased.

Vanscoyoc, Roland	1	S	Battle Ground
VanSickle, John Marion	2	A	Kokomo
VanSickle, Robert William	1	Ch	Frankfort
VanSickle, Samuel Gilbert	1	A	Kokomo
Van Tilbury, Rex Adrian	2	C	Mishawaka
VanVoorst, Henry	1	E	Monticello
VanVoorst, Robert Francis	2	E	Union Hill, Ill.
Van Winkle, Edward Mathiot	2	Ch	Muncie
Varney, Edward Porter	1	E	Indianapolis
Varney, Gordon Edward	1	Ch	Indianapolis
Vaughn, Dewitt Charles	1	E	Fowler
Vehling, Robert Henry	2	E	Indianapolis
Veirs, Marguerite Hester	1	S	Rochester
Vernier, Paul Conklin	1	E	Marion
Vernon, Esther Romayne	1	S	Goshen
Vesenmeir, Leo	1	Ch	Lawrenceburg
Viemont, Bessie Marie	1	S	LaFayette
Vogel, Myrle Larcom	1	Ch	Danville
Vogelgesang, Carl Edgar	3	C	Massillon, Ohio
Vorhis, Carol Newport	1	C	Wolcott
Wade, Lucy Wallace	4	S	LaFayette
Wade, Roscoe	1	M	Stroh
Wagaman, Edith Frances	1	S	Indianapolis
Wagner, Earl Buffington	1	E	Indianapolis
Wagner, Norbert Augustine	4	S	LaFayette
Wagoner, Glen Everett	1	A	Flora
Wahl, Richard Paul	1	E	Bremen
Waidelich, Clarence Carl	3	C	LaFayette
Waits, James Henry	W	S	Rushville
Waldon, Elgin Pooley	3	M	Detroit, Mich.
Walker, Arthur Bond	4	A	Solon
Walker, Erwin Vincent	2	E	Woodward, Okla.
Walker, John Wood	3	E	Greenfield
Wallace, William	1	M	LaFayette
Walraven, Wayne Wright	1	E	Jasonville
Walser, Paul Hankins	3	A	Shelbyville
Walsh, Hugh	1	C	Greenfield
Walsmith, Frank Danial	1	M	Montpelier
Walters, Marion Samuel	1	C	Sullivan
Walters, Roscoe Forest	1	A	Franklin
Walters, William Eldon	2	A	Kewanna
Walthall, George Dewey	P	2	Jonesboro
Walton, George Braun	1	E	Greenfield
Ward, Margaret Julia	2	C	West LaFayette
Ward, Ray Everet	1	E	Covington
Warden, George Nixon	1	M	Clinton
Ware, Noel C.	1	E	Liberty Center
Warner, William Reece	1	A	West LaFayette
Warnock, Onda Odon	1	S	West LaFayette
Warr, Merlin Gladstone	3	A	Brook
Warren, Archie Frederick	1	E	Albany
Warren, Edward Richard	3	E	El Paso, Tex.
Warren, James Glenn	1	A	Union City

Warren, Myrna	4 S	Kouts
Wass, Donald Emmett	1 E	Greencastle
Wasson, William Henry	1 C	Rensselaer
Waterbury, Dale Marr	4 S	Indianapolis
Waterbury, Neil Marr	2 Ch	Indianapolis
Waterfall, Wallace	1 Ch	Columbia City
Waters, John Reynolds	2 A	West LaFayette
Watson, Dewey Elbert	2 A	Goldsmith
Watson, Elwood Kay	1 A	Corydon
Watson, Gerald William	2 M	Indianapolis
Watson, Lola Elisabeth	2 S	Wabash
Wattles, Russell Aaron	P 1	Oxford
Watts, Harold William	1 E	Knightstown
Watts, Ivan Clarence	1 E	Logansport
Weaver, Elmo Bradford	2 E	Ligonier
Weaver, Jesse Clarence	1 C	Tipton
Weaver, Roy Anderson	3 Ch	Dayton, Ohio
Weaver, Wilfrid Russell	1 M	Lowell
Webb, William Lester	2 E	Huntington
Webster, Chester Edwom	W S	Plymouth
Webster, Hayes Hilbert	1 M	Washington
Webster, Joseph Wesley	1 A	Summitville
Wegel, Harold Jennings	1 M	Evansville
Weghorst, John Henry	4 A	Indianapolis
Weigle, Weldon Griffith	4 A	Monepelier, Ohio
Weingand, Milford	1 Ch	Indianapolis
Weinshank, Harry Theodore	3 M	Indianapolis
Weishaar, Ivan Paul	1 Ch	Kentland
Weissert, Charles Daniel	1 M	Plymouth
Weissert, Harold August	1 A	Plymouth
Welborn, Ivan Addison	1 C	New Castle
Welch, John Joseph	1 M	Fort Wayne
Weldy, Lloyd Otto	1 M	Winamac
Wells, George Spencer	3 M	New Albany
Wells, Theodore Oren	1 C	LaPorte
Wells, William	3 C	Rockport
Wendeln, Oliver Bernard	1 E	St. Marys, Ohio
Werkman, Chester Hamlin	4 A	Fort Wayne
Werner, Ralph Christian	1 Ch	Indianapolis
Werner, William Bernerd	1 A	Winamac
West, Kendall Everett	2 M	Bremen
Westerman, Lester Heyman	1 Ch	Crown Point
Westfall, Bessie Ellen	3 S	West LaFayette
Westfall, Martha Isabella	3 S	LaFayette
Westring, Elmer	1 C	Attica
Wetzler, Thomas Earl	1 E	Sunman
Wever, Leonard Sheldon	1 Ch	Springville
Wheatley, Arza Omer	1 E	Fortville
Wheeler, Marion Frances	1 S	Indianapolis
Wheeler, Norburt Joseph	3 C	LaFayette
Whipkus, Robert John Franklin	4 Ch	West LaFayette
White, Dale Lucian	2 Ch	Zionsville
White, Donald Sigsbee	1 A	Lebanon
White, Lillian Alice	2 S	Muncie

White, Nathaniel Gustav	1	C	Washington, Ill.
Whitehead, Stuart Griffith	1	M	Indianapolis
Whitehead, William Garrett	2	E	Tipton
Whiteman, Herbert Merrill	1	P	Albany
Whitford, Ralph Alonzo	3	E	West LaFayette
Whiting, William Dewey	2	C	Francisco
Whitinger, Lawrence Thomas	1	M	Fort Wayne
Whitnell, George Trammell	2	C	East St. Louis, Ill.
Whitsel, Earl Newton	1	A	Independence
Whitson, Ernest Lee	1	C	North Judson
Wible, Ralph Lincoln	s	A	Bedford
Wickwire, George Charles	3	A	Angola
Wien, Edna Bertha	2	S	LaFayette
Wigton, Robert Frederick	1	C	LaGrange
Wilcken, Everett Edward	W	S	Columbia City
Wilder, Donald	1	E	Winslow
Wiley, Robert Wilson	1	M	Geneva
Wilga, Fedor Petrovitch	1	A	Moscow, Russia
Wilkins, Kenneth Warren	1	C	Oxford
Wilkinson, Ermal Cale	1	A	Stewartsville
Wilkinson, Hearn Geno	1	E	New Castle
Willey, Ralph Edwin	1	E	Manilla
Williams, Alice Mae	1	S	Indianapolis
Williams, Dale Clinton	1	M	Garrett
Williams, Fay Emerson	1	M	Hartsville
Williams, George Andrew	1	E	Bicknell
Williams, Guy Hubert	2	A	Pendleton
Williams, George Roger	2	E	Mishawaka
Williams, Harry Albert	2	Ch	Seymour
Williams, James Eliphalet	1	Ch	Greenfield
Williams, James Ellsworth	4	A	West LaFayette
Williams, Orville S.	2	A	Mooreland
Williams, Philip Lamar	2	Ch	Darlington
Williams, Ruth	1	S	LaFayette
Williamson, Frank Foster	1	A	Crawfordsville
Williamson, John Clarke	2	E	Princeton
Willson, William David	1	C	Richmond
Wilson, Claude Avery	3	M	Mt. Vernon
Wilson, Charles Nelson	1	Ch	Delphi
Wilson, Charles Walt	1	Ch	Buffalo, N. Y.
Wilson, George Burr	4	Ch	Jonesboro
Wilson, Harlan Darrell	4	Ch	LaFayette
Wilson, Harry Hornbeck	1	A	Camden
Wilson, John William	1	E	Hartford City
Wilson, Kenneth Carleton	1	M	Brazil
Wiltse, Homer Everett	1	S	Kokomo
Wimmer, Charles Henry	1	Ch	Rosedale
Wimpy, Orville Robert	2	E	Marion
Wine, William Calvin	1	M	Bremen
Winings, Grover Cleveland	W	S	Maywood
Winks, Letha Sabra	1	S	West LaFayette
Winslow, Lindley Arthur	1	E	Arlington
Winter, Paul Herbert	1	M	Jeffersonville
Wintersteen, Herbert Paul	3	E	New Castle

Wirt, Rebecca Anna	W	S	Greensburg
Witherspoon, Harvey Milburn	1	M	Patoka
Witherspoon, James Horace	1	E	Patoka
Wittenberg, Carroll Freiderich	2	C	Kentland
Wittlin, Albert Joseph	1	E	Indianapolis
Wobith, Arthur Bernard	1	E	North Judson
Wolf, Edmund Meinrad	4	Ch	LaPorte
Wolfe, Oliver Mackenzie	4	M	New Harmony
Wolff, Ludwig	2	C	West LaFayette
Wood, Clarence Logue	1	C	Salem
Wood, Claude Obern	3	E	Fairmount
Wood, Charles Wesley	3	A	Jasonville
Wood, Herbert Kring	2	M	Indianapolis
Wood, Jesse Albert	4	A	Bedford
Wood, James William	P	2	Hillsboro
Wooden, Lonnie Leo	1	A	Hall
Woodhall, Earle Winston	1	Ch	Attica
Woodhall, Gladys Irene	2	S	Attica
Woods, Arthur James	3	E	Tangier
Woods, David Wilson	1	M	Owensboro, Ky.
Woods, Raymond DeHaven	1	C	Indianapolis
Woodsmall, Harry Crim	1	Ch	Indianapolis
Woodworth, Harold Ernest	1	M	Albuquerque, N. Mex.
Woodworth, John Orville	1	C	LaGrange
Wright, John Robert	1	Ch	Sullivan
Wright, Myron Johnson	1	A	Farmland
Wright, Ross Taylor	2	A	Clarks Hill
Wright, William Lee	3	S	Indianapolis
Wyckoff, Louis Kenyon	2	A	Valparaiso
Wycoff, Edgar Byron	1	E	LaFayette
Wykoff, Benjamin Franklin	1	M	Bedford
Wylie, George Henry	1	E	Rochester
Yaeger, Elston Gray	4	M	Rochester, N. Y.
Yarling, Harold	2	A	Shelbyville
Yeager, Gladys MaBelle	4	S	West LaFayette
Yeager, Lester Emil	2	A	Owensboro, Ky.
Yergin, Lester Keasey	1	E	Goshen
Yoars, Gail Wesley	W	S	Amboy
York, Alva Arthur	1	E	Fort Wayne
Yost, Erma Amanda	2	S	West LaFayette
Yost, Lloyd Aaron	2	E	West LaFayette
Young, Anna Marion	1	S	Hammond
Young, Arthur Nichols	2	C	Indianapolis
Young, Orville Louis	2	A	Cannelton
Younger, Charles Kelley	2	A	Chalmers
Yund, Roy Milton	2	A	Lincoln
Zadek, Milton	1	A	New York, N. Y.
Zaring, William Clarence	W	S	Indianapolis
Zimmerman, Dewey Wilber	1	M	Ridgeville
Zimmerman, Forrest John	1	A	Ridgeville
Zimmerman, Orlan Byron	1	P	Alexandria
Zimmerman, Russel Otterbein	W	S	Birdseye
Zutt, John Hartmety	W	S	Evansville

GEOGRAPHICAL SUMMARY OF STUDENTS

During the year 1918-1919 there have been students enrolled from every county but one in Indiana and from the following States and foreign countries:

States.

Alabama	3	Mississippi	2
Arkansas	2	Missouri	7
Arizona	3	Montana	3
California	1	Nebraska	1
Colorado	2	New Jersey	5
Connecticut	1	New Mexico	2
District of Columbia	2	New York	17
Florida	3	North Dakota	1
Georgia	1	Ohio	87
Idaho	2	Oklahoma	6
Illinois	55	Oregon	1
Iowa	6	Pennsylvania	14
Kansas	5	Philippine Islands	4
Kentucky	38	South Dakota	1
Louisiana	1	Tennessee	7
Maryland	1	Texas	6
Massachusetts	3	West Virginia	2
Michigan	10	Wisconsin	4
Minnesota	2	Wyoming	1

Countries.

Bolivia	1	Cuba	2
Chile	1	Hungary	1
China	11	Russia	1
Colombia	1		

Total—

In 36 States (exclusive of Indiana)	312
In 9 Foreign Countries	18
	330

STATISTICAL SUMMARY OF STUDENTS, APRIL 1, 1919.

	Agriculture	Chemical Engineering	Civil Engineering	Electrical Engineering	Mechanical Engineering	Pharmacy		Science	Total
						Four Year	Two Year		
Freshman	244	152	209	265	425	7	18	102	1422
Sophomore	106	61	72	80	92	3	---	63	477
Junior	84	30	39	43	70	4	---	50	320
Senior	74	27	17	29	51	4	2	47	251
Total for Year	**508**	**270**	**337**	**417**	**638**	**18**	**20**	**262**	**2470**
Special	8	---	2	3	2	---	---	8	23
Graduate—Candidate for degrees—Resident	2	---	---	1	---	---	---	13	16
Non-resident	4	1	11	11	2	---	---	5	34
Not candidate for degrees	---	---	---	---	---	---	---	6	6
Eight Weeks Winter School	56	---	---	---	---	---	---	---	56
Total Net Enrollment	**578**	**271**	**350**	**432**	**642**	**18**	**20**	**294**	**2605**

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